WMBX-3011-2701 series

User Manual

Rev.01 Jun. 2011

Statement

All product specifications are subject to change without prior notice.

Packing List

- ☐ WMBX-3011-2701 x 1
- ☐ 60W DC12V Adapter x 1
- ☐ Power cord (US) x 1
- ☐ Food pad x 4
- ☐ Screws pack x 1
- ☐ Wall mount kit x 1
- ☐ VESA mount kit x 1 (option)
- ☐ Driver CD (Include user manual) x 1

Ordering Information

STANDARD:

☐ WMBX-3011-2701

Mini-BOX with Atom N270 CPU with 1xVGA, 5xCOM, 2xLAN, 4xUSB, DDR2 SODIMM max up to 2GB, CF and 2.5" HDD support, mini-PICe for WLAN expansion(option), wall mount kit, 60W DC12V Adapter, smart fan design.

OPTION:

☐ VESA mount kit for WMBX-3011 series

Contents

Chapter 1 Product Information

This chapter introduces product features, jumper and connector information.

1.1 General Description

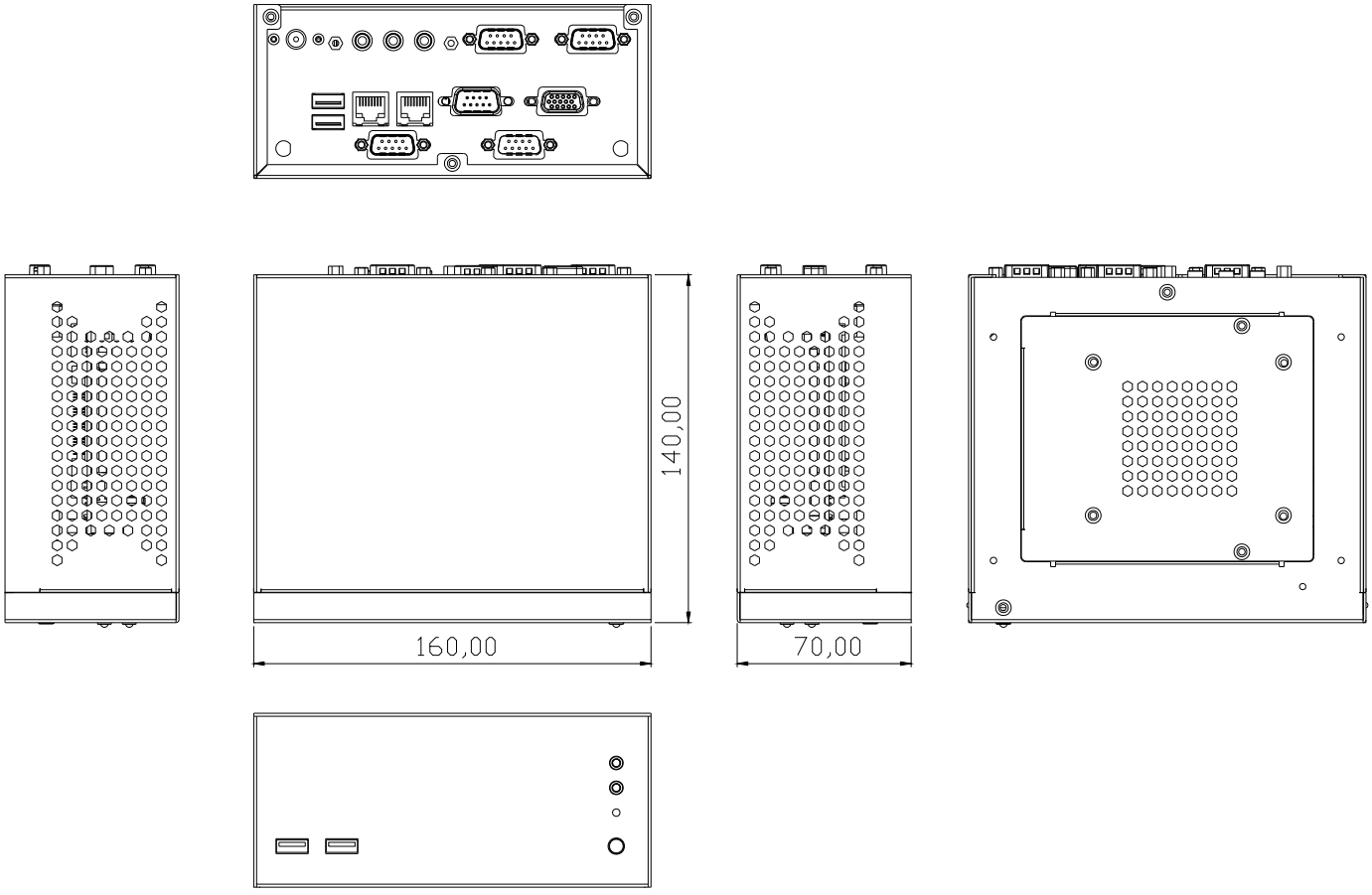
The **WMBX-3011-2701 series** is a Mini BOX PC system that can support Atom N270 processors. **WMBX-3011-2701 series** support Windows® 2000, Windows® XP, Windows® XP embedded, and Windows® 7, which is suitable for the most endurable operation.

1.2 Features

Construction	Heave duty steel
CPU	Intel Atom N270 1.6GHz processor onboard
System memory	1 x 200-pin DDR2 400/533/667 SO DIMM SDRAM, max. up to 2GB
FSB	533MHz
Chipset	Intel 945GSE + ICH7M
BIOS	Award 16MB SPI
System I/O	Front I/O: 2 x USB Rear I/O: 2 x USB, 2 x LAN, 1 x VGA, 5 x COM(4 x RS-232, 1 x RS-232/422/485), 1 x Audio(Mic-in, Audio-out, Line-in), 1 x WLAN (optional)
Watch dog timer	Interval: Programmable 1~255 sec.
Storage support	1 x CF and 1 x 2.5" HDD
Expansion slot	1 x mini-PCIe
System Indicators	1 x Power LED, 1 x HDD LED
System controls	1 x Power on switch, 1 x Reset switch
Mounting Kit	Wall mount kit VESA mount kit (option)
Power Supply	AC 60W adapter, Input: AC 100~240V~2A 50-60Hz, Output: DC12V@5A
Operating Temperature	0°C~45°C (32°F~140°F)
Storage temperature	-20°C~80°C (-68°F~176°F)
Relative Humidity	0%~90% (non-condensing)
Dimensions	160mm(W) x 140mm(D) x 70mm(H) 6.3"(W) x 5.5"(D) x 2.75"(H)
Weight	Gross: 2.6Kg/5.72Lb Net: 2.0Kg/4.4Lb
Standard Color	Black

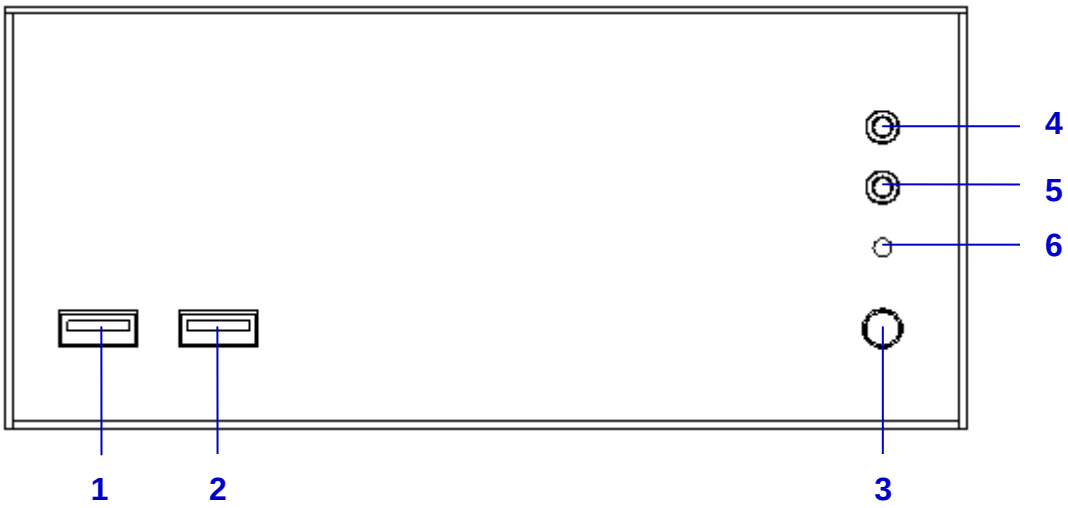
1.3 Dimensions

The following diagrams show dimensions and outlines of the **WMBX-3011-2701 series**.



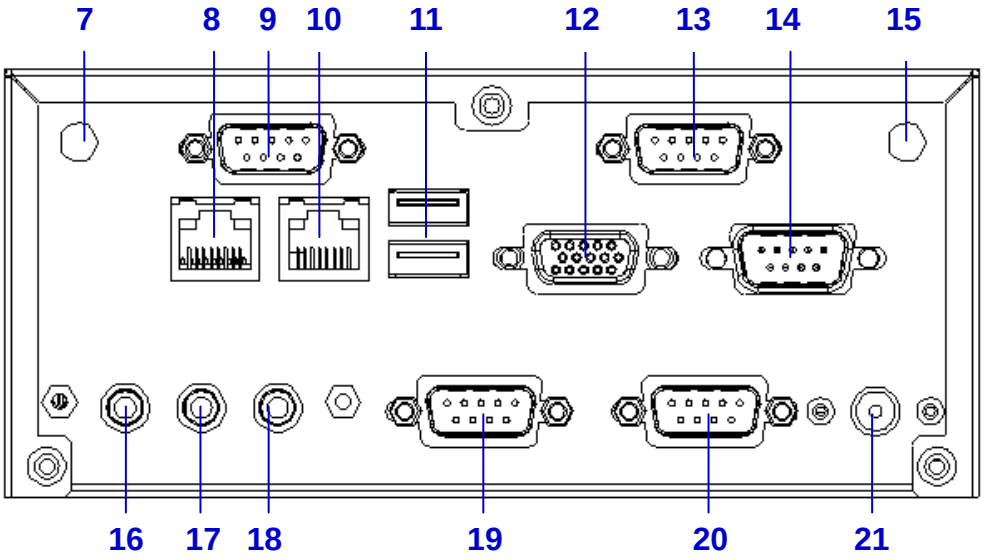
1.4 I/O Outlets

FRONT



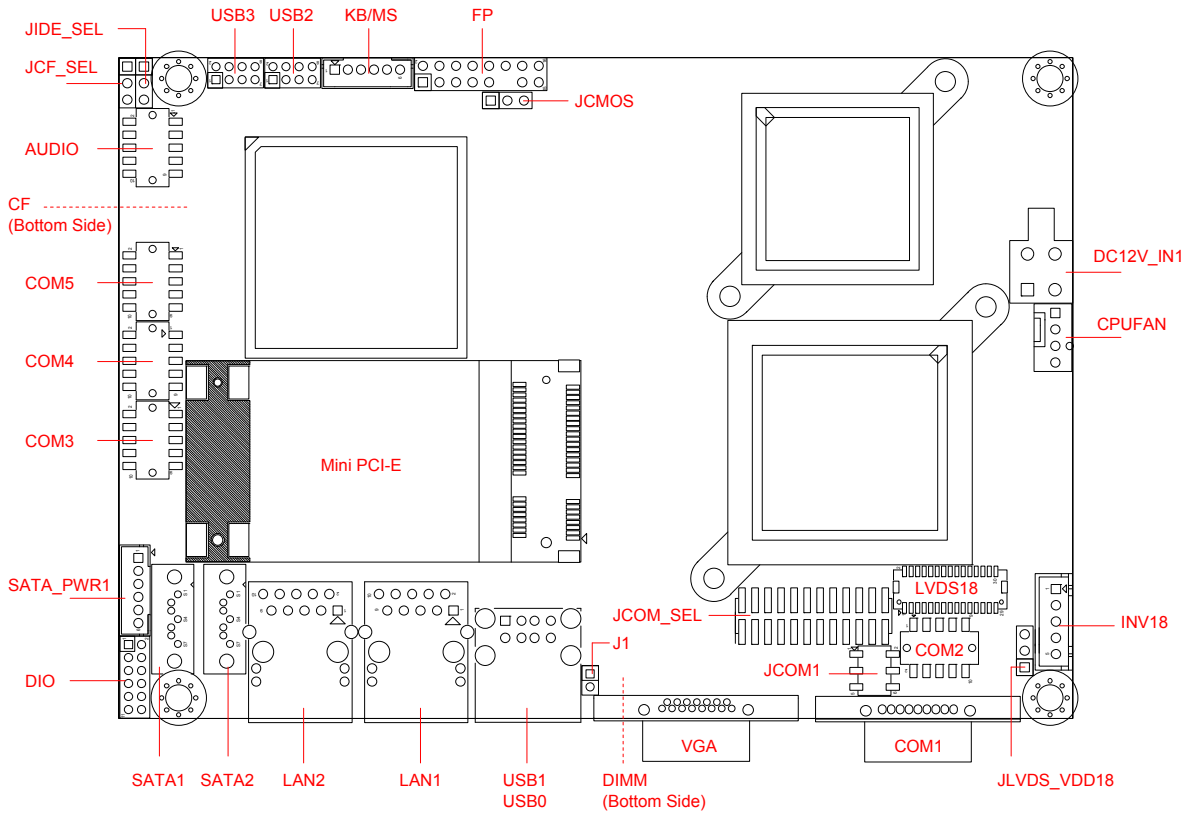
1. USB
2. USB
3. Power on button
4. Power status LED
5. HDD status LED
6. Reset button

BACK



7. Antenna hole
8. LAN Port (LAN2)
9. COM Port (COM3)
10. LAN Port (LAN1)
11. USB Port (2 port)
12. VGA Port
13. COM Port (COM2)
14. COM Port (COM1)
15. Antenna hole
16. Audio (Line in)
17. Audio (Mic in)
18. Audio (Line out)
19. COM Port (COM5)
20. COM Port (COM4)
21. DC12V input

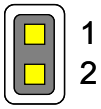
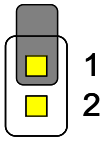
1.5 M/B PCB Layout



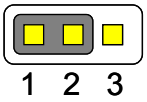
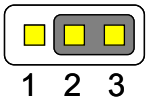
1.6 Jumper Setting

WNA-3011-2701 series has a number of jumpers inside the chassis that allows you to configure the system to suit the application. The table below lists the functions of various jumpers.

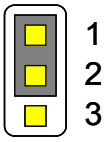
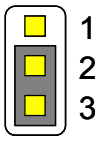
J1：AT/ATX Select

Pin No.	1-2	2-NA
Function	AT Power mode	ATX Power mode (Default)
Jumper Setting		

JCMOS：CMOS Clear

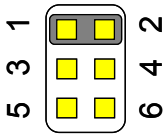
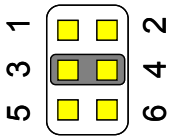
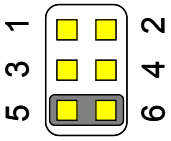
Pin No.	1-2	2-3
Function	Normal Operation (Default)	Clear CMOS Contents
Jumper Setting		

JCF_SEL：Compact Flash (Master / Slave) Select

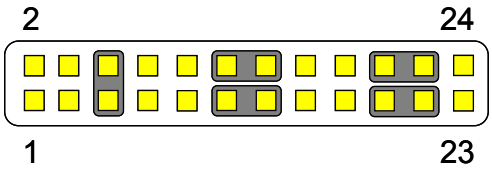
Pin No.	1-2	2-3
Function	Master Mode	Slave Mode (Default)
Jumper Setting		

JCOM1：COM1 (5V/12V/RI) Select

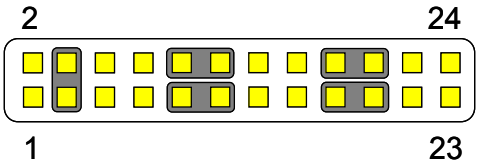
Pin No.	1-2	3-4	5-6
Function	+5V	Modem Ring In (Default)	+12V

Jumper Setting			

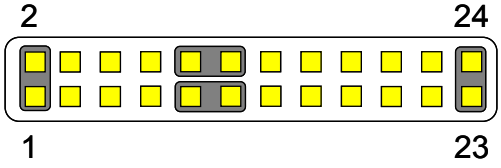
JCOM_SEL：COM2 Select (1/5)

Pin No.	5-6, 11-13, 12-14, 19-21, 20-22
Function	RS-232 (Default)
Jumper Setting	

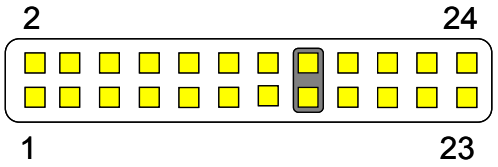
JCOM_SEL：COM2 Select (2/5)

Pin No.	3-4, 9-11, 10-12, 17-19, 18-20
Function	RS-422
Jumper Setting	

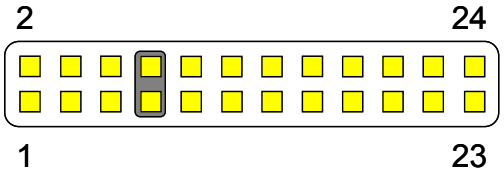
JCOM_SEL：COM2 Select (3/5)

Pin No.	1-2, 9-11, 10-12, 23-24
Function	RS-485
Jumper Setting	

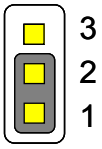
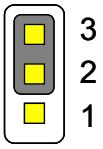
JCOM_SEL：COM2 Select (4/5)

Pin No.	15-16
Function	RS-422 RX 100Ω Termination
Jumper Setting	

JCOM_SEL：COM2 Select (5/5)

Pin No.	7-8
Function	RS-422 TX 100Ω / RS-485 Termination
Jumper Setting	

JLVDS_VDD18:

Pin No.	1-2	2-3
Function	LCD Power 5V	LCD Power 3.3V (Default)
Jumper Setting		

1.7 Connector Function List

Connector	Function	Note
AUDIO	Line-in, Line-out, MIC-In Connector	
CF	Compact Flash Connector	
COM1	COM port DB9 Connector	
COM2,3,4,5	COM port Connector	
CPU FAN	System FAN	
DC12V_IN1	DC12V Input	
DIMM	DDR2 SO-DIMM	
DIO	Digital Input/output	
FP	Front Panel Connector	
INV_18	18bit LCD Inverter connector	
KB/MS	KB/MS PS2 Connector	
LAN1-2	RJ-45 Connector	
LVDS_18	18bit LCD Connector	
Mini PCI-E	Mini PCIE Connector	
SATA1-2	SATA Connector	
SATA_PWR1	SATA Power	
USB1	USBx2 Stack Connector	
USB2-3	USBx2 Connector	
VGA	VGA Connector	

1.8 Internal Connector Pin Define

Audio: Audio Connector with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	LINE_R_IN	2	LINE_L_IN
3	GND	4	GND
5	LINE_R_OUT	6	LINE_L_OUT
7	GND	8	GND
9	MIC_R_IN	10	MIC_L_OUT

COM2-5: COM Connector with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/A

COM2: RS 422 Serial Port with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	DCD TX-	2	NC
3	RXD TX+	4	NC
5	TXD RX+	6	NC
7	DTR RX-	8	NC
9	NC	10	NC

COM2: RS 485 Serial Port with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	DCD DATA-	2	NC
3	RXD DATA+	4	NC
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC

CPUFAN: CPUFAN Connector with (2.54 mm)

Pin No.	Signal
1	GND
2	+12V
3	Speed Sense
4	PWM Control

DC12V_IN1: DC12V Power Input Connector

Pin No.	Signal
1	GND
2	GND
3	+12V
4	+12V

DIO: Digital IO Connector with Pin Header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	D_Out0	2	D_IN0
3	D_Out1	4	D_IN1
5	D_Out2	6	D_IN2
7	D_Out3	8	D_IN3
9	+12V	10	+5V
11	GND	12	Key

FP: Front Panel Connector with Pin Header (2.54 mm)

Pin No.	Signal	Pin No.	Signal
1	Power LED+	2	HDD LED+
3	N/C	4	HDD LED-
5	Power LED- (GND)	6	Suspend LED+
7	RESET+	8	Suspend LED-
9	RESET-(GND)	10	Speaker-
11	Key	12	N/C
13	Power Button+	14	N/C
15	Power Button-(GND)	16	Speaker +(+5V)

INV18: LCD Inverter Connector with Box-header (2.5 mm)

Pin No.	Signal
1	+12V
2	+12V
3	GND
4	Back Light Control
5	Back Light Enable#

KB/MS: Keyboard and Mouse Connector with Box-header (2.0 mm)

Pin No.	Signal
1	+5V
2	Mouse Data
3	Mouse Clock
4	Keyboard Data
5	Keyboard Clock
6	GND

LVDS_18: 18 bit LCD Connector with Box-header(1.0mm)

Pin No.	Signal	Pin No.	Signal
1	GND	2	GND
3	N/C	4	N/C
5	A_CLK+	6	A_CLK-
7	A_DATA2+	8	A_DATA2-
9	A_DATA1+	10	A_DATA1-
11	A_DATA0+	12	A_DATA0-
13	GND	14	GND
15	NC	16	NC
17	B_CLK+	18	B_CLK-
19	B_DATA2+	20	B_DATA2-
21	B_DATA1+	22	B_DATA1-
23	B_DATA0+	24	B_DATA0-
25	DDC_CLK	26	DDC_DATA
27	+3.3V	28	+3.3V
29	+3.3V	30	+3.3V

SATA_PWR1: SATA Power Connector with Box-header (2.0 mm)

Pin No.	Signal
1	+5V
2	+5V
3	GND
4	GND
5	+12V
6	+12V

USB2-3：USB Connector with Pin Header (2.0 mm)

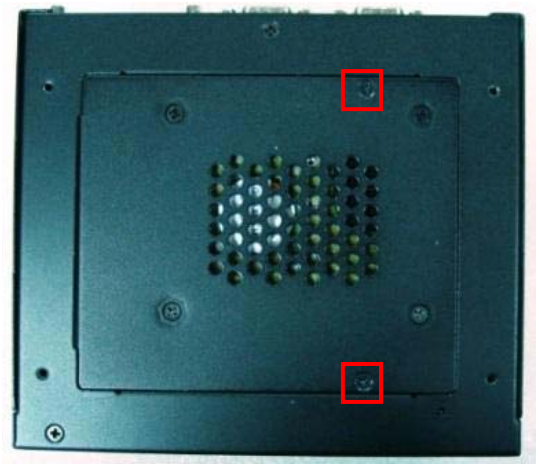
Pin No.	Signal	Pin No.	Signal
1	+5V	2	GND
3	USB DATA-	4	USB DATA+
5	USB DATA+	6	USB DATA-
7	GND	8	+5V

Chapter 2 Hardware Installation

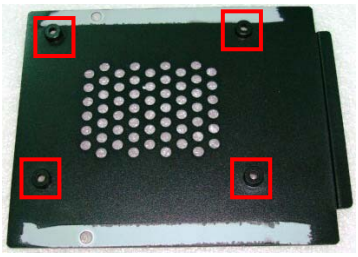
WMBX-3011-2701 series are convenient for various hardware configurations, such as Memory Module, HDD, Compact Flash. The chapter 2 will show you how to install the hardware. The information is shown as bellow:

2.1 Install memory module

Step 1: Remove the cover screws at the bottom (2pcs).



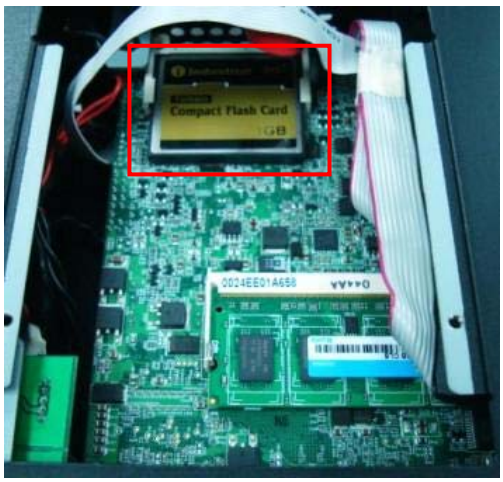
Step 2: Add 2.5” SATA HDD screws (4pcs).



Step 3: Connect SATA + Power cable.

2.2 Install Compact Flash Card

Insert Compact Flash Card.



2.3 Install memory module

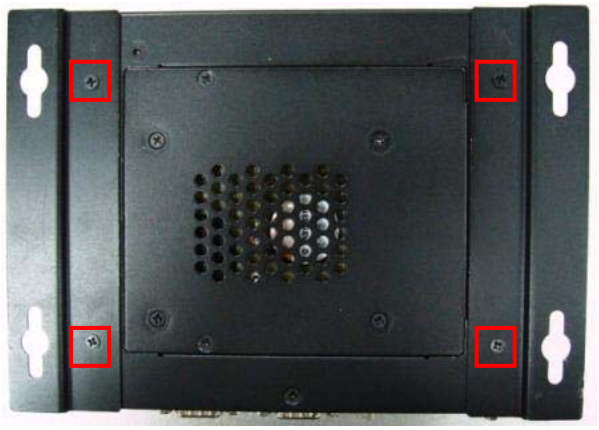
Insert memory module.

2.4 Install mini-PCIe expansion module

Insert mini-PCIe module (full size only).

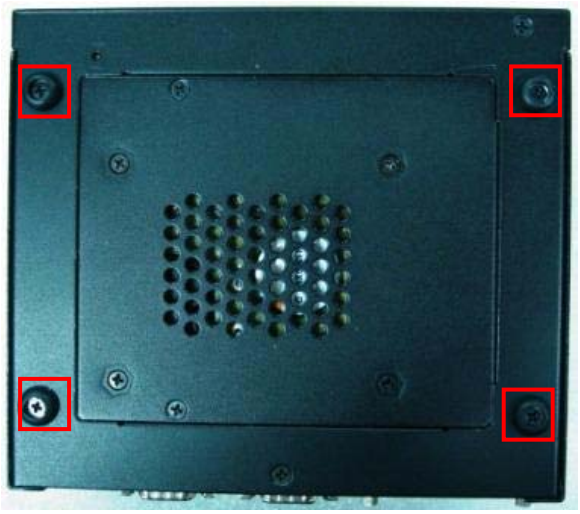
2.5 Install wall mount kit

Connect wall mount kit screws (4pcs).



2.6 Installing the foot pad

Connect foot pad screws (4pcs).

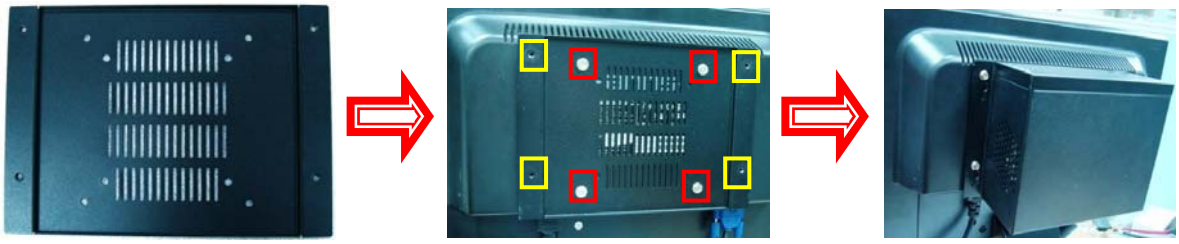


Note: Wall mount kit and foot pad only can select one

2.7 Install the VESA mount kit

Connect VESA mount kit screws (4pcs).

Connector Wall mount kit screws on VESA mount kit (4pcs).



Chapter 3 BIOS Setup

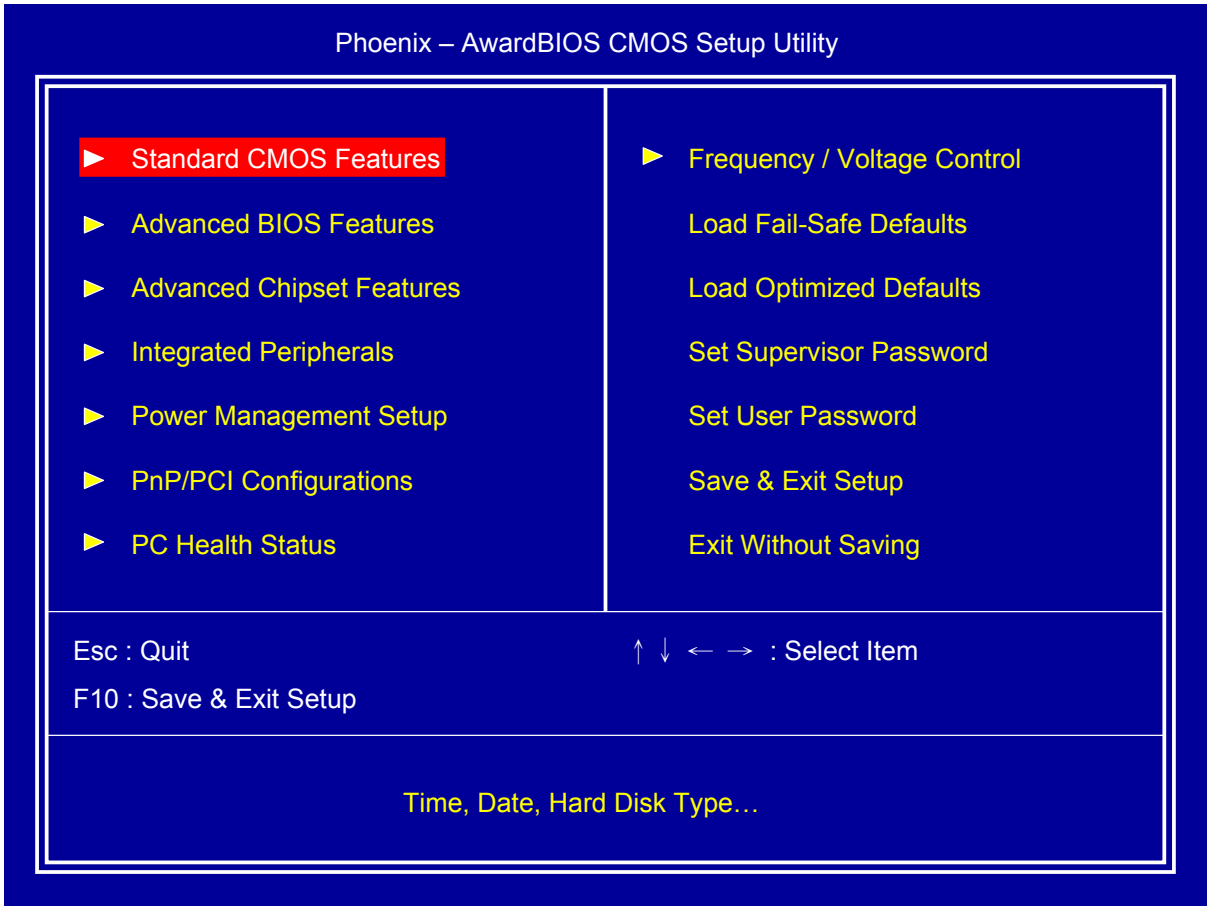
This chapter introduces BIOS setup information.

Power on or reboot the system board, when screen appears message as “Press DEL to enter SETUP“. Press <DEL> key to run BIOS SETUP Utility.

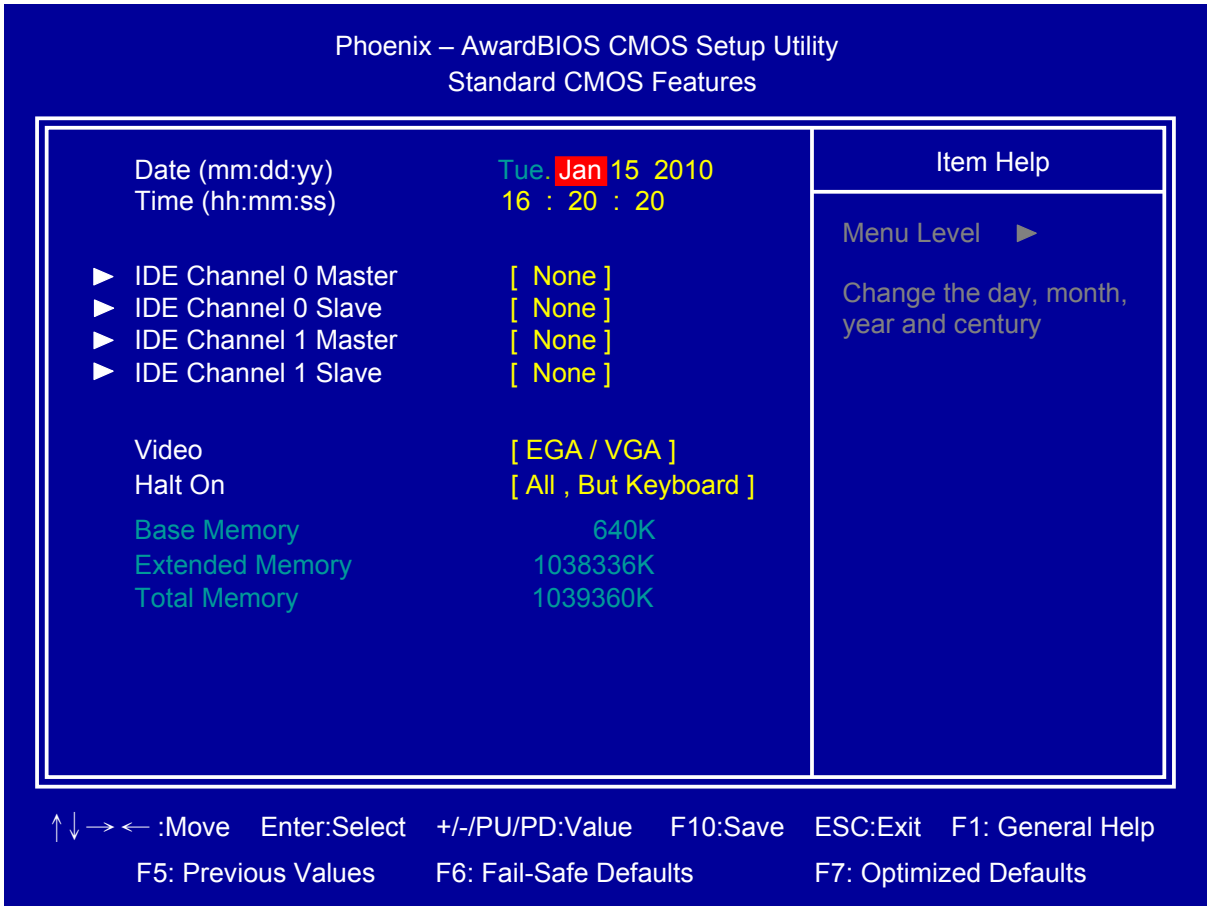
Note: The BIOS configuration for reference only, it may subject to change without prior notice.

3.1 Main Menu

Please use arrow key to select item, then press <Enter> to accept or enter the sub-menu.



3.2 Standard CMOS Features



☐ **Date**

Set system date.

☐ **Time**

Set system time.

☐ **IDE Channel 0 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 1 Master/Slave**

Press <Enter> for IDE device automatic detection.

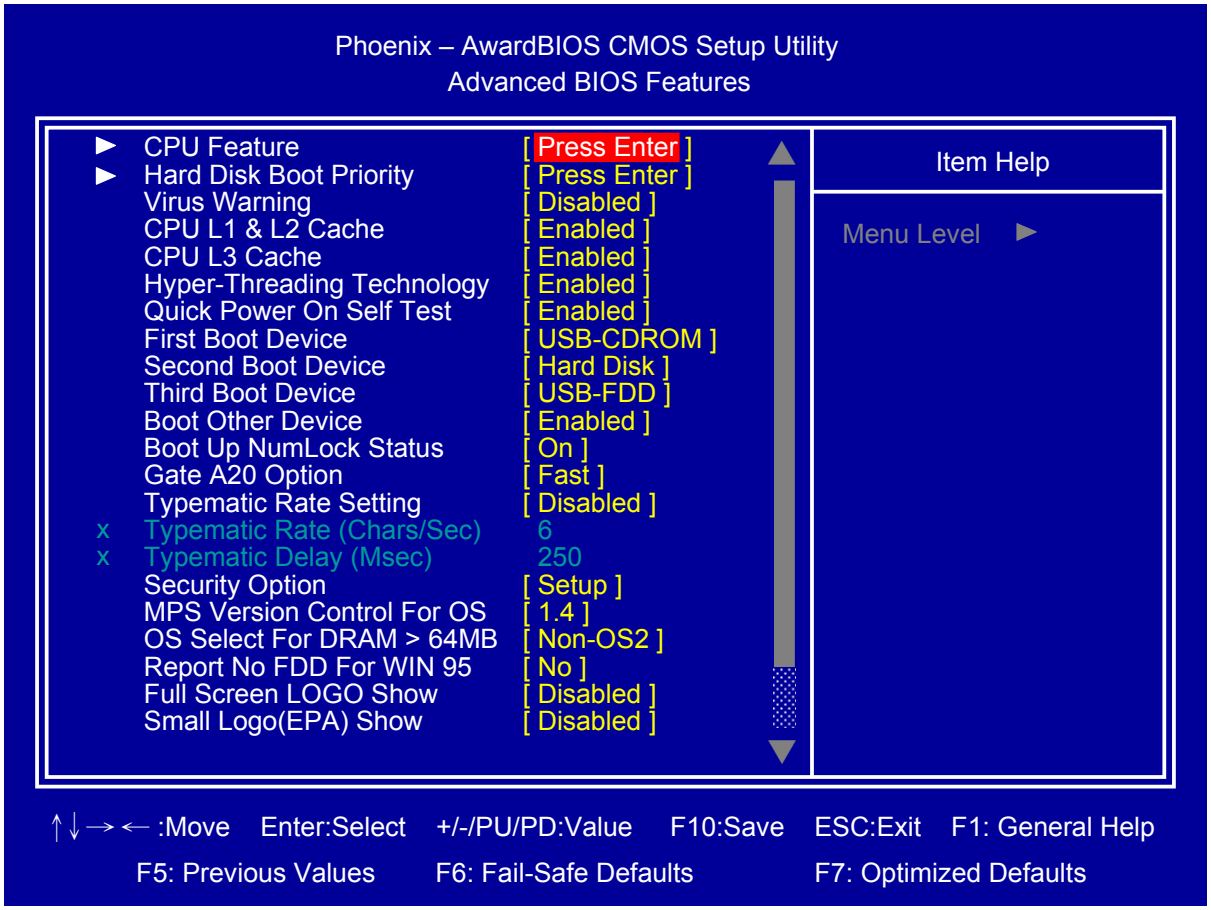
☐ **Video**

Select Video device type.

☐ **Halt on**

Select stop procedure or ignore it when error detected during POST (Power On Self Test).

3.3 Advanced BIOS Features



☐ **CPU Feature**

Press <Enter> to select CPU parameter.

☐ **Hard Disk Boot Priority**

Press <Enter> to select Hard Disk boot device priority.

☐ **Virus Warning**

Select “Virus Warning” Enabled/Disabled.

☐ **CPU L1 & L2 Cache**

Select “CPU L1 & L2 Cache” Enabled/Disabled.

☐ **CPU L3 Cache**

Select “CPU L3 Cache” Enabled/Disabled.

☐ **Hyper-Threading Technology**

Select “Hyper-Threading Technology” Enabled/Disabled.

☐ **Quick Power On Self Test**

Select “Quick Power On Self Test” Enabled/Disabled.

☐ **First/Second/Third Boot Device**

Select boot device priority.

☐ **Boot Other Device**

Select “Boot Other Device” Enabled/Disabled.

☐ **Boot Up NumLock Status**

Select <NumLock> key ON/Off when system boot up.

☐ **Gate A20 Option**

Select Gate A20 controlled by Keyboard controller (Normal) or Port 92 (Fast).

☐ **Typematic Rate Setting**

Select “Typematic Rate Setting” enabled to set.

Typematic Rate (Chars/Sec): Number of characters repeated in one second.

Typematic Delay (Msec): When hold one key, set the time between the first and second character displayed.

☐ **Security Option**

Select security mode.

Setup: Require password to permit BIOS setup utility.

System: Require password to permit boot-up and BIOS setup utility.

☐ **MPS Version Control For OS**

Select MPS (Multiprocessor Specification) Version 1.4 to add extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Select Version 1.1 for older Operation Systems.

☐ **OS Select For DRAM > 64M**

Select “OS2” only if you are running older version of IBM OS/2 Operating System with greater than 64MB of RAM on the system. Otherwise select “Non-OS/2” setting.

☐ **Report No FDD For WIN 95**

If running Windows 95/98 without floppy disk drive, select “Enabled” to release IRQ6. This is required to pass Windows 95/98's SCT test, if select “Disabled”, BIOS will not report missing floppy drive to Win95/98.

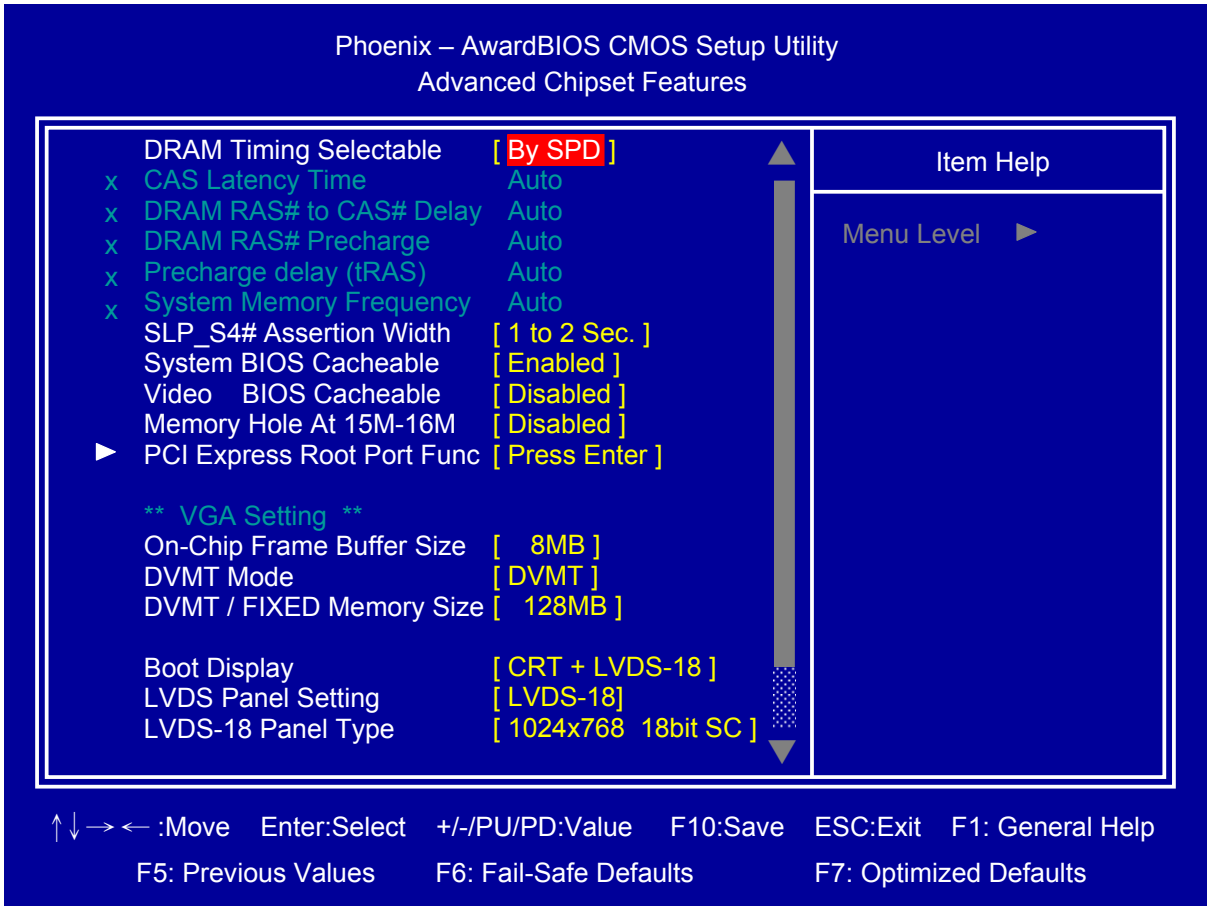
☐ **Full Screen Logo Show**

Select the full screen logo appears during the system boot-up process.

☐ **Small Logo (EPA) Show**

Select EPA (Environmental Protection Agency) Energy Star logo appears during the system boot-up process.

3.4 Advanced Chipset Features



☐ DRAM Timing Selectable

Select DRAM timing by SPD (Serial Presence Detect) or manual.

☐ SLP_S4# Assertion Width

Select the minimum assertion width of SLP-S4# signal to guarantee DRAM has been safely power-cycled.

☐ System BIOS Cacheable

Select “Enabled” to caching of the system BIOS at F0000h-FFFFFh, resulting in better system performance. However, if any programs are written in this memory area, the system error may be resulted.

☐ Video BIOS Cacheable

Select “Enabled” to caching of video BIOS at C0000h-F7FFFh, resulting in better video performance. However, if any programs are written in this memory area, the system error may be resulted.

☐ **Memory Hole at 15M-16M**

Select “Enabled” to improve performance, certain space in memory can be reserved for ISA cards. The memory must be mapped into the memory space below 16 MB.

☐ **PCI Express Root Port Func**

Press <Enter> to set PCI Express function.

☐ **On-Chip Frame Buffer Size**

Select share system memory 1MB or 8MB.

☐ **DVMT Mode**

DVMT (Dynamic Video Memory Technology) allows the system to dynamically allocate memory resources according to the demands of the system at any points in time, that improves efficiency of the memory allocated to either system or graphics processor.

☐ **DVMT/Fixed Memory Size**

Select DVMT/Fixed Memory Size 64MB/128MB/224MB.

☐ **Boot Display**

Select boot display device type.

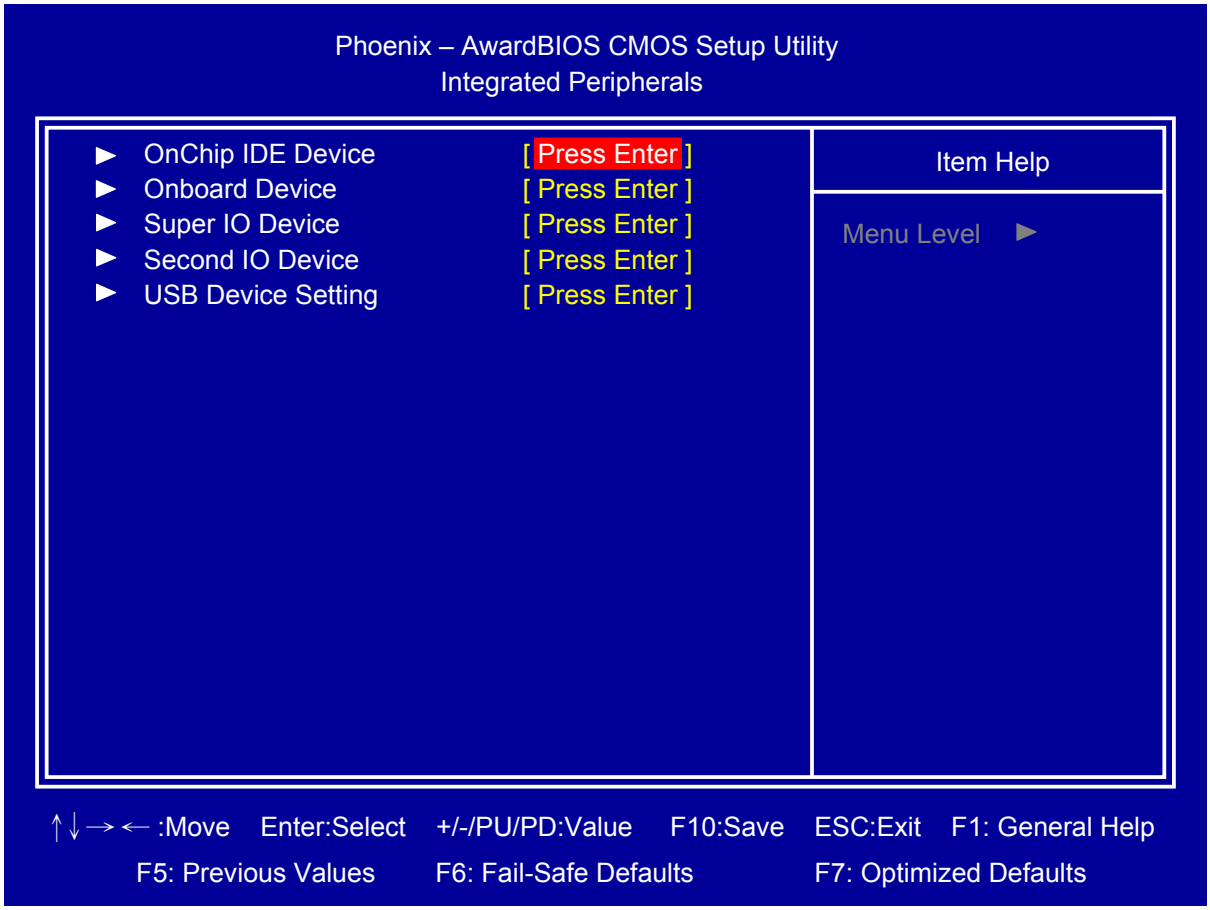
☐ **LVDS Panel Setting**

Select LCD panel type.

☐ **LVDS-18 Panel Type**

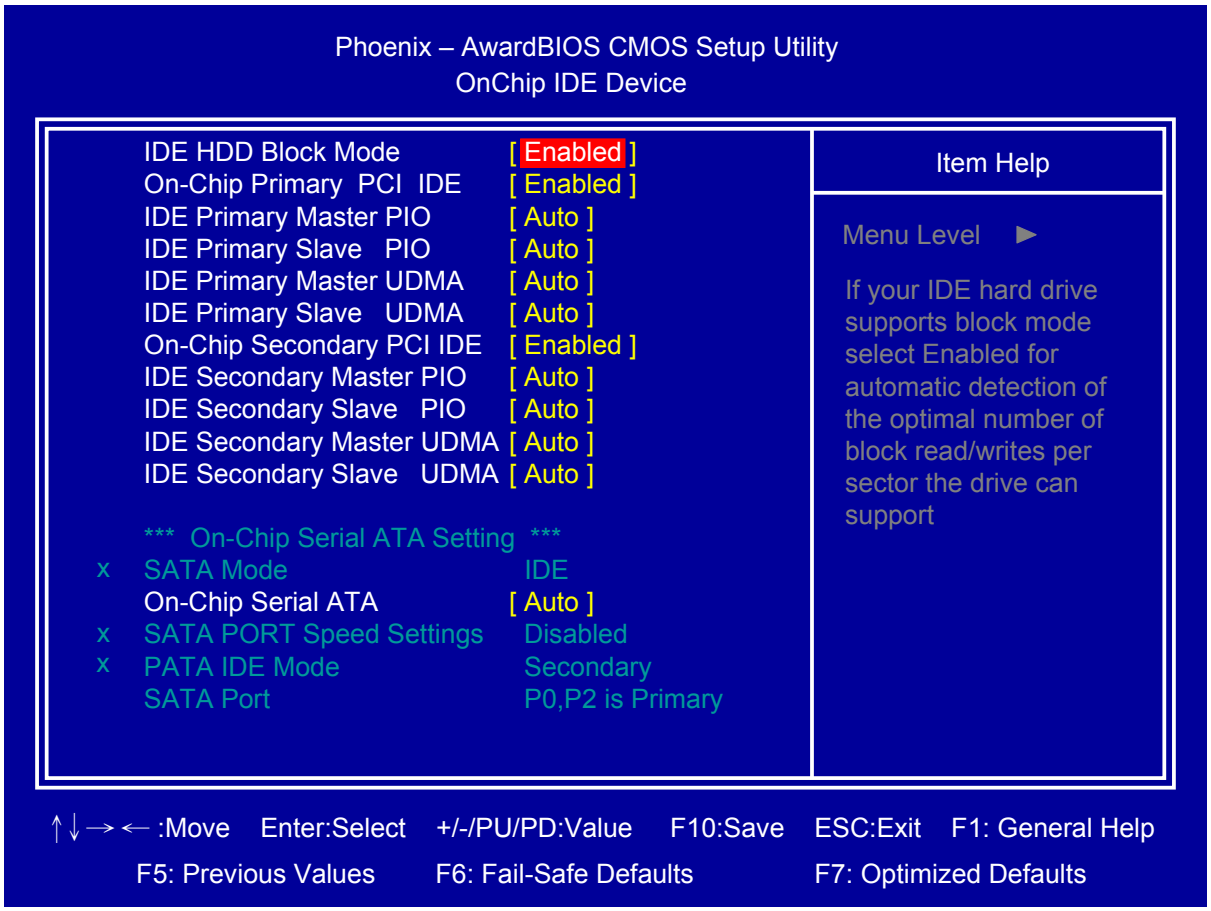
Select LCD 18 bit resolution.

3.5 Integrated Peripherals

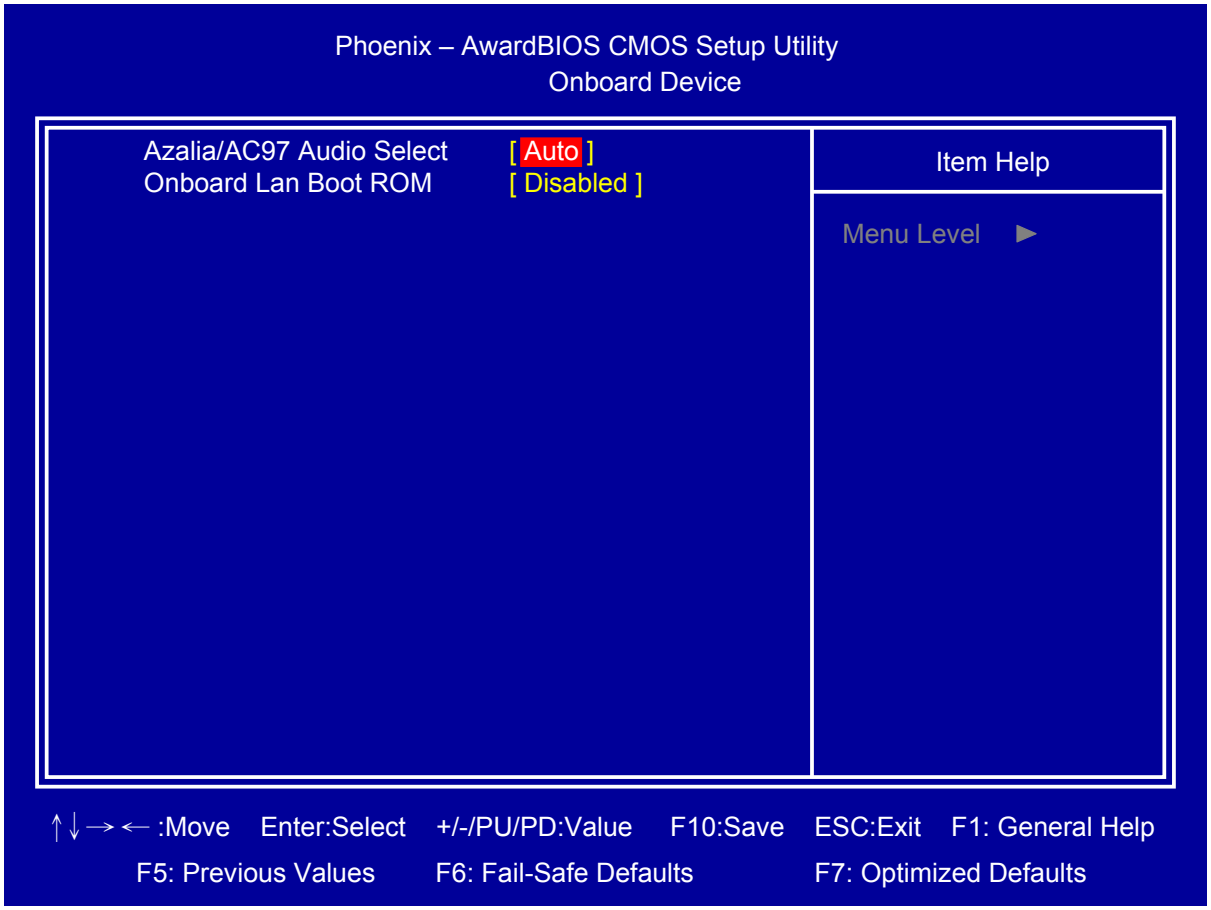


☐ OnChip IDE Device

Press <Enter> to set IDE and SATA device configuration.



☐ Onboard Device



☐ Azalia/AC97 Audio Select

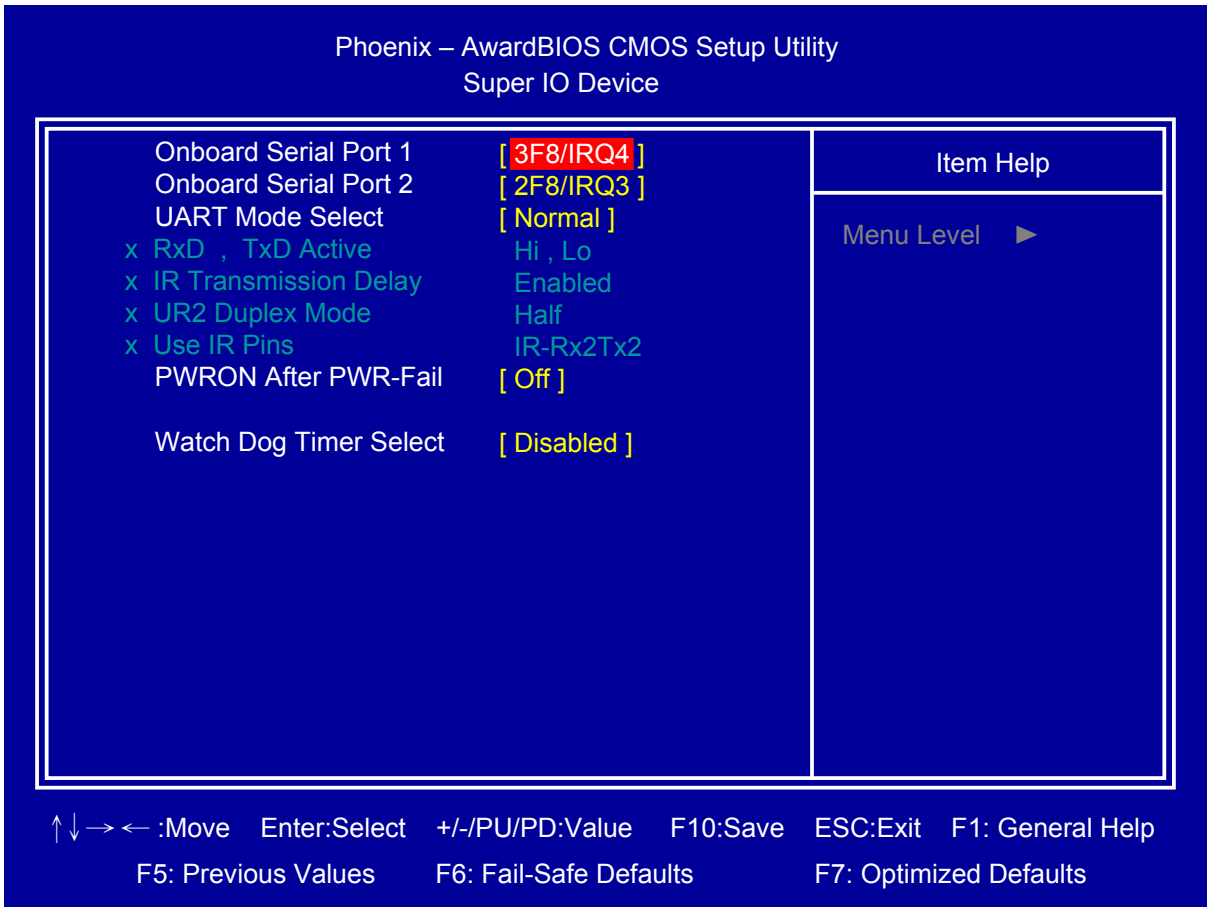
Select Azalia/AC97 Auto/All Disabled.

☐ Onboard Lan Boot ROM

Decide whether to invoke the boot ROM of onboard LAN chip.

☐ Super IO Device

Press <Enter> to select Serial, Parallel and “I” configuration.



☐ Onboard Serial Port 1/2

Select serial port address.

☐ UART Mode Select

Select UART mode: IrDA (Infrared) / ASKIR (Amplitude Shift Keyed Infrared) / Normal (RS232C).

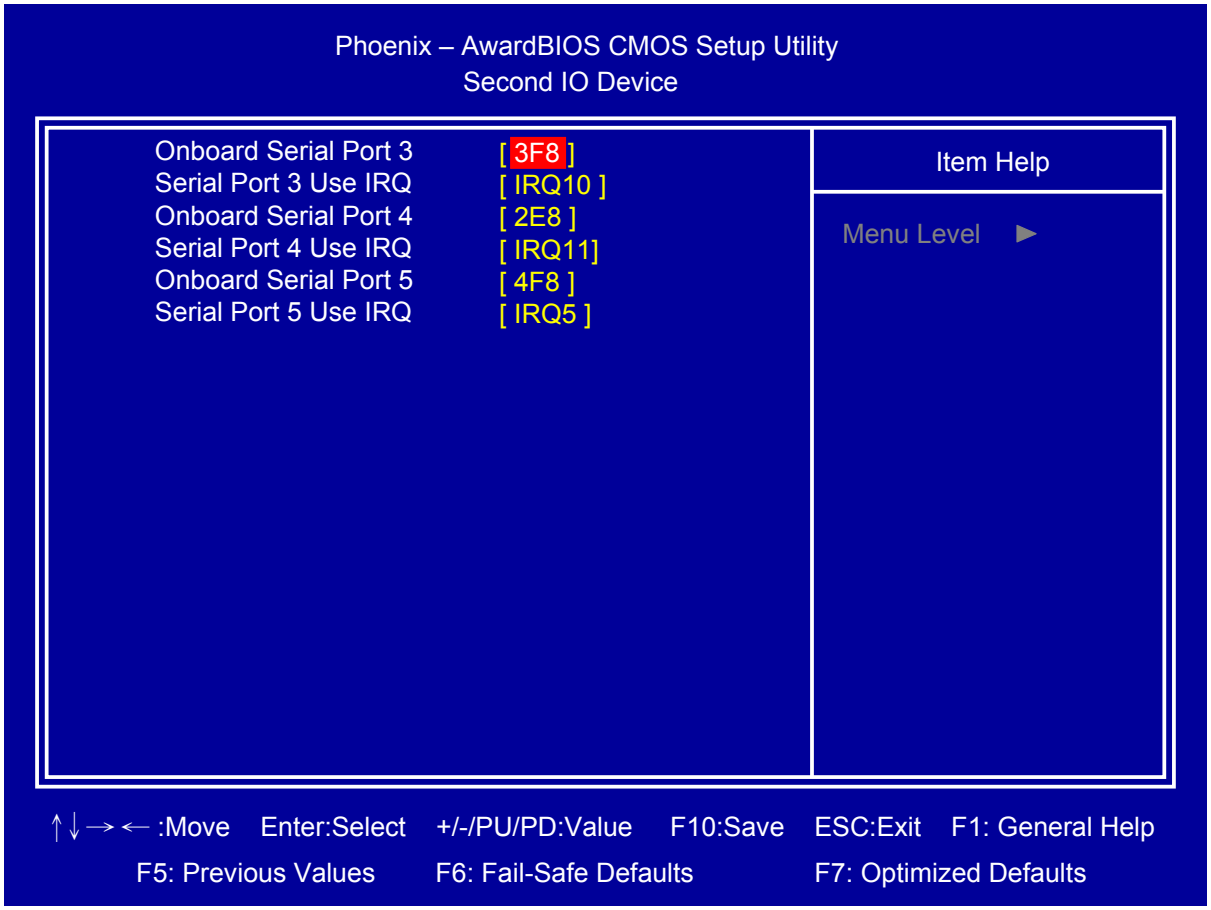
☐ PWRON After PWR-Fail

Select Power ON after Off/On.

☐ Watch Dog Timer Select

Select Watch dog Disabled or set timer value.

☐ Second IO Device



☐ Onboard Serial Port 3/4/5

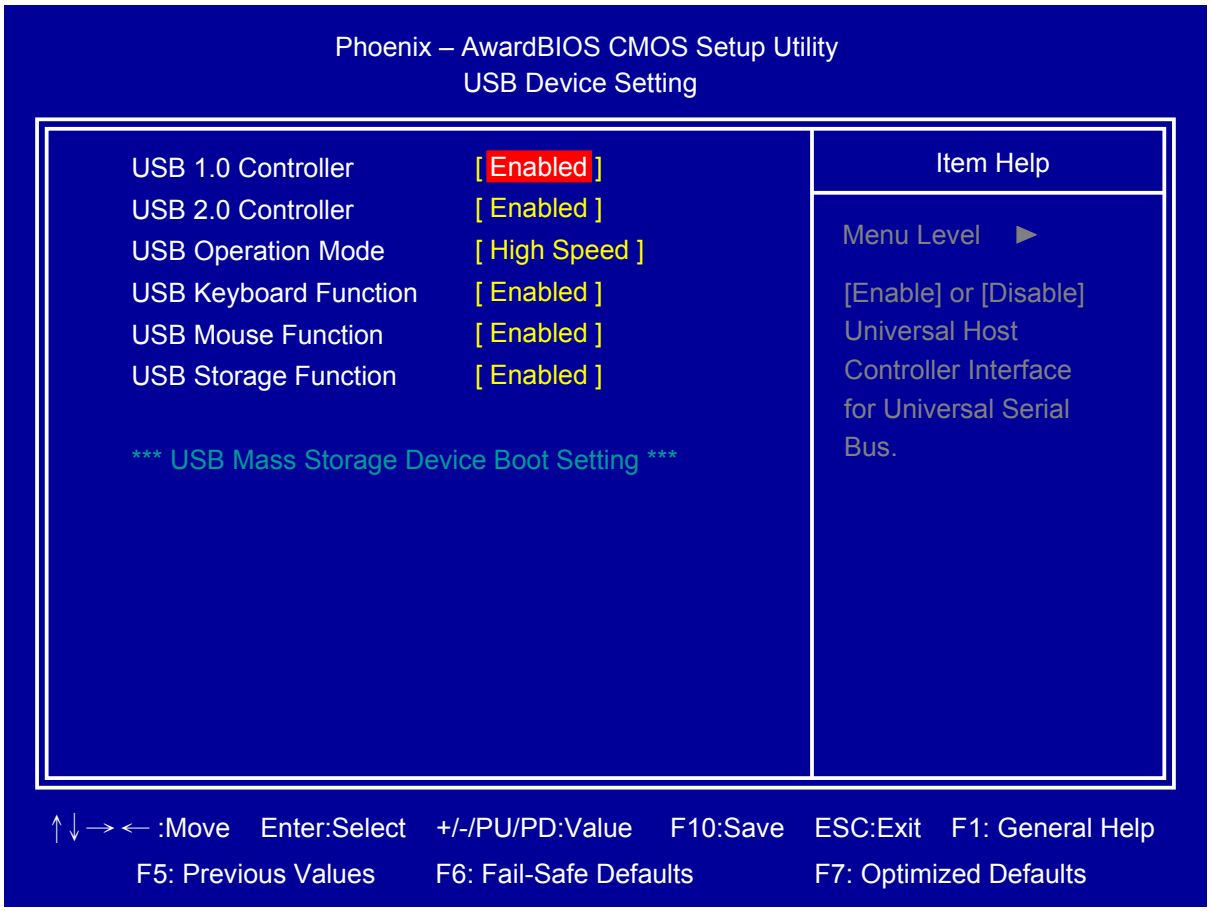
Select serial port address.

☐ Serial Port 3/4/5 Use IRQ

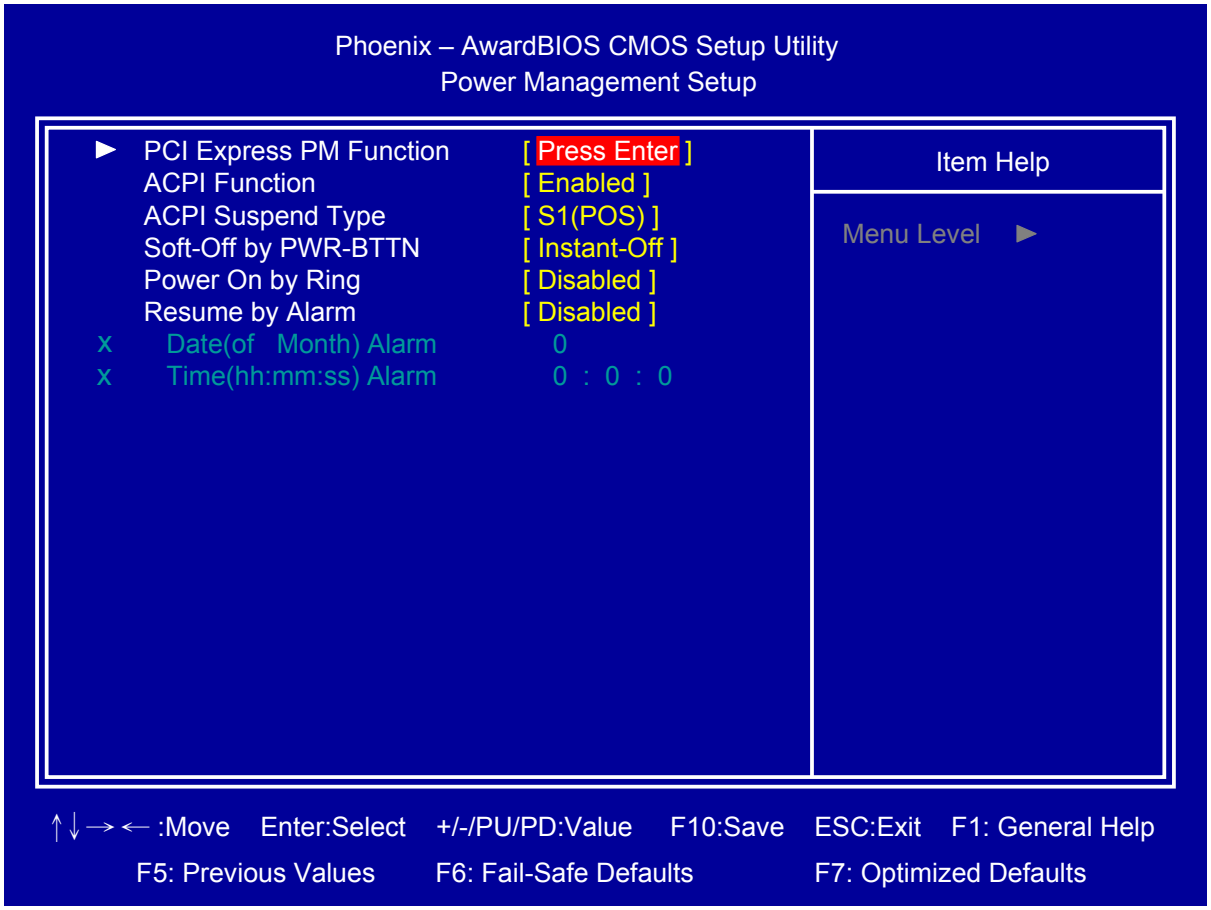
Select serial port IRQ.

☐ USB Device Setting

Press <Enter> to select USB device configuration.

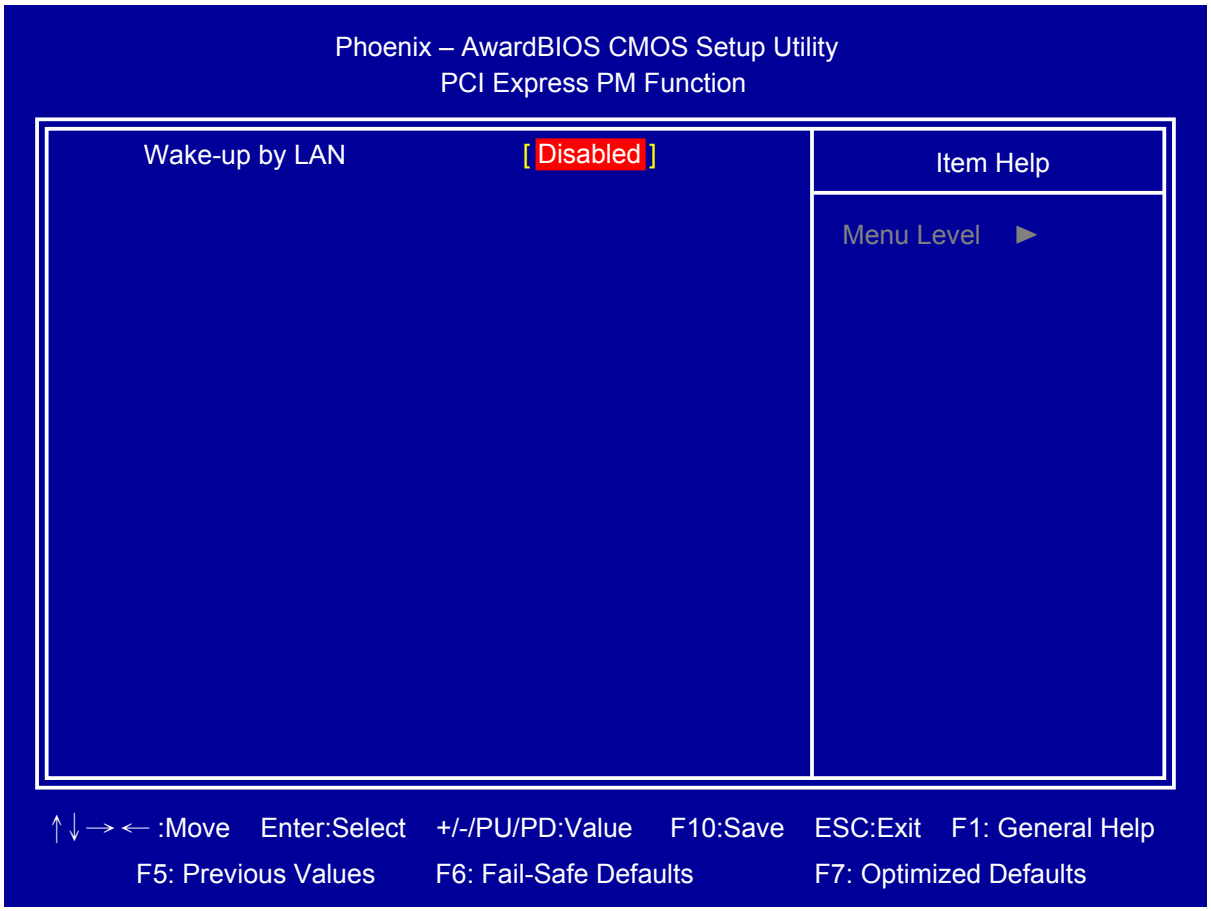


3.6 Power Management Setup



☐ PCI Express PM Function

Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.



☐ ACPI Function

Select ACPI (Advanced Configuration and Power Management) Enabled/Disabled.

☐ ACPI Suspend Type

Select S1 (POS)/S3 (STR)/S1&S3.

☐ Soft-Off by PWR_BTTN

Select power button function,

Instant-off: Press power button will turn off instantly.

Delay 4 Sec: Press power button 4 seconds to turn off.

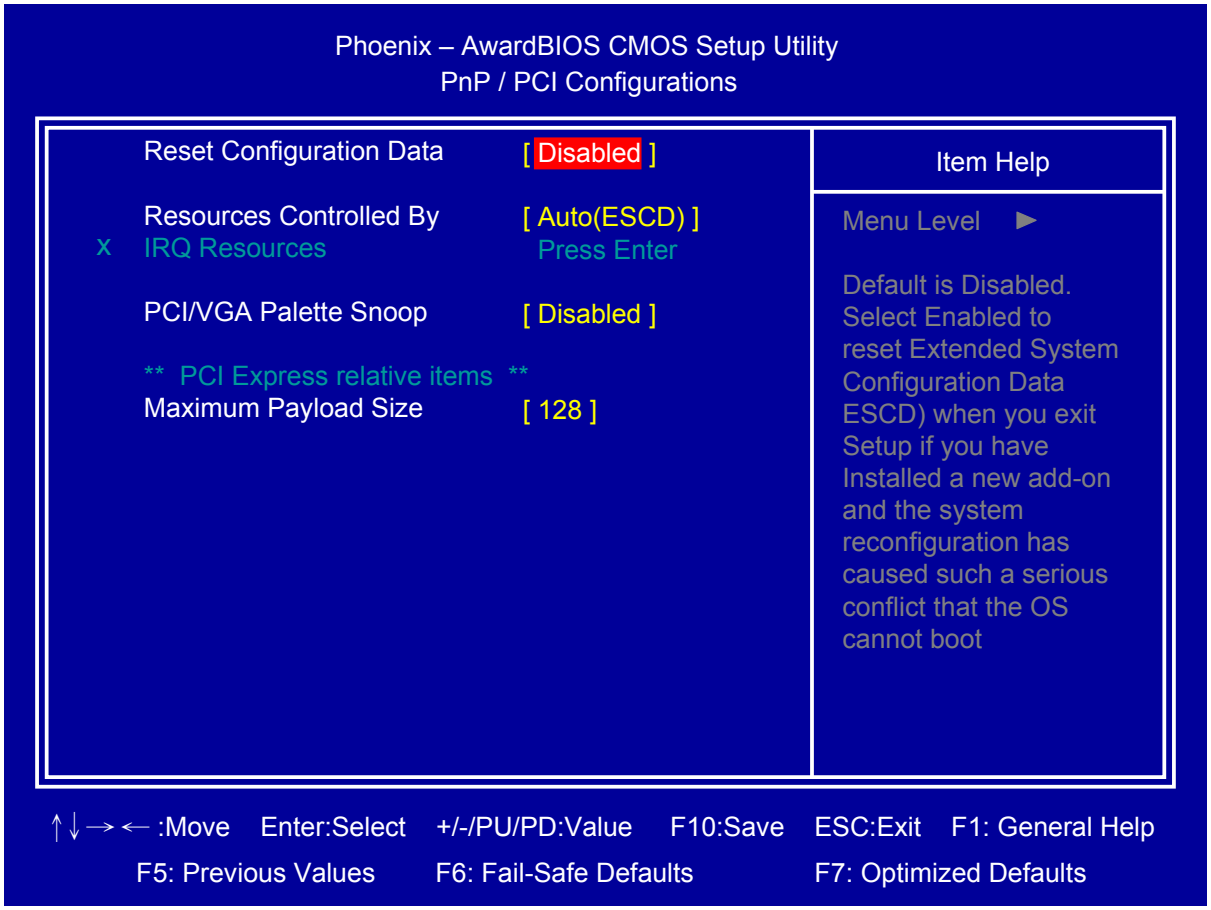
☐ Power On by Ring

Select Power on by Ring Indicator signal from Modem.

☐ **Resume by Alarm**

Set date and time to power on system from soft-off state.

3.7 PnP/PCI Configurations



☐ **Reset Configuration Data**

Select Enabled to reset Extended System Configuration Data (ESCD) when you exit BIOS setup utility, if you have installed new add-on card and the system reconfiguration has caused a serious conflict that OS cannot boot.

☐ **Resources Controlled By**

BIOS can automatically configure all boots, Plugs and Play compatible devices.

If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically has assigned them.

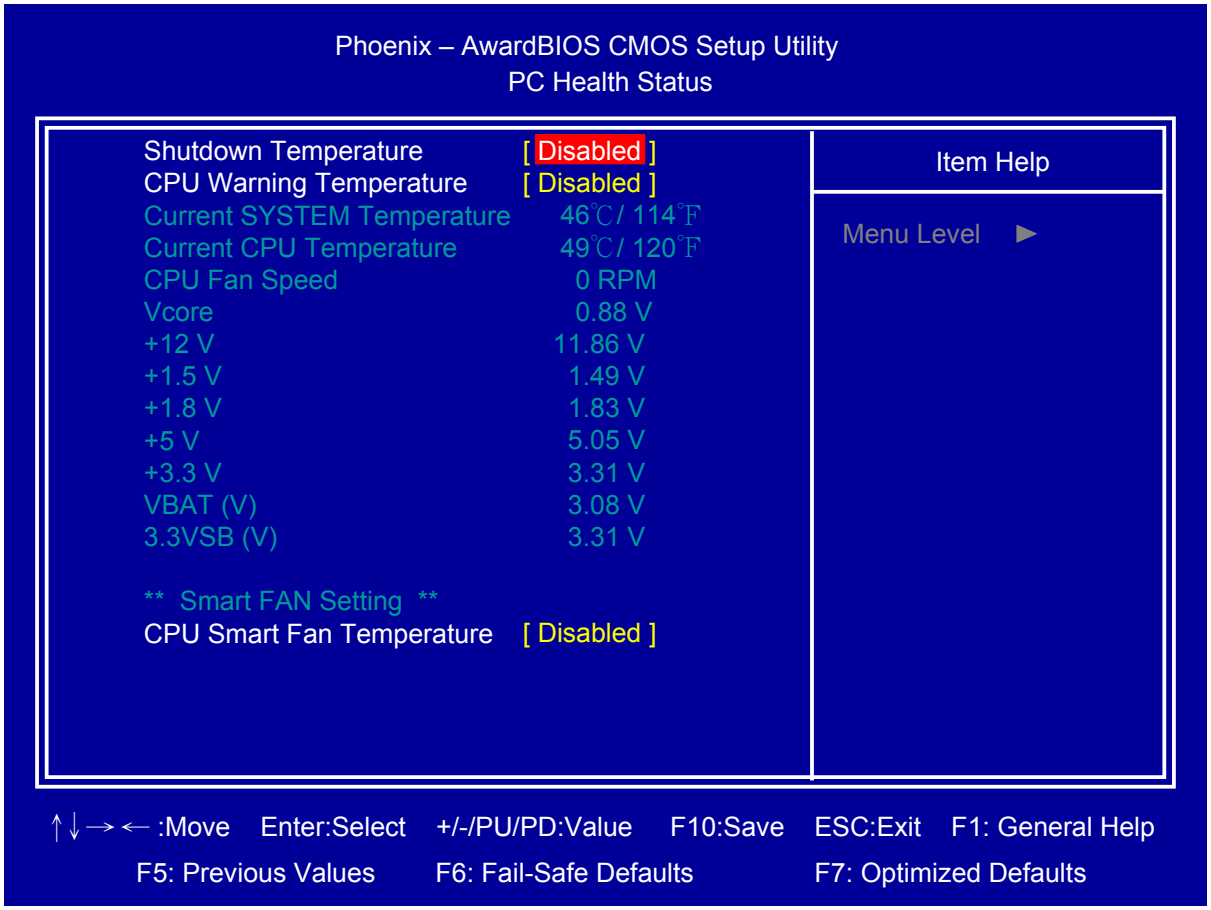
☐ **PCI/VGA Palette Snoop**

Select PCI/VGA Palette Snoop Enabled/Disabled.

☐ **Maximum Payload Size**

Set maximum TLP payload size for the PCI Express devices. The unit is byte.

3.8 PC Health Status



☐ **Shutdown Temperature**

If CPU temperature reaches the setting value will automatic shutdown system.

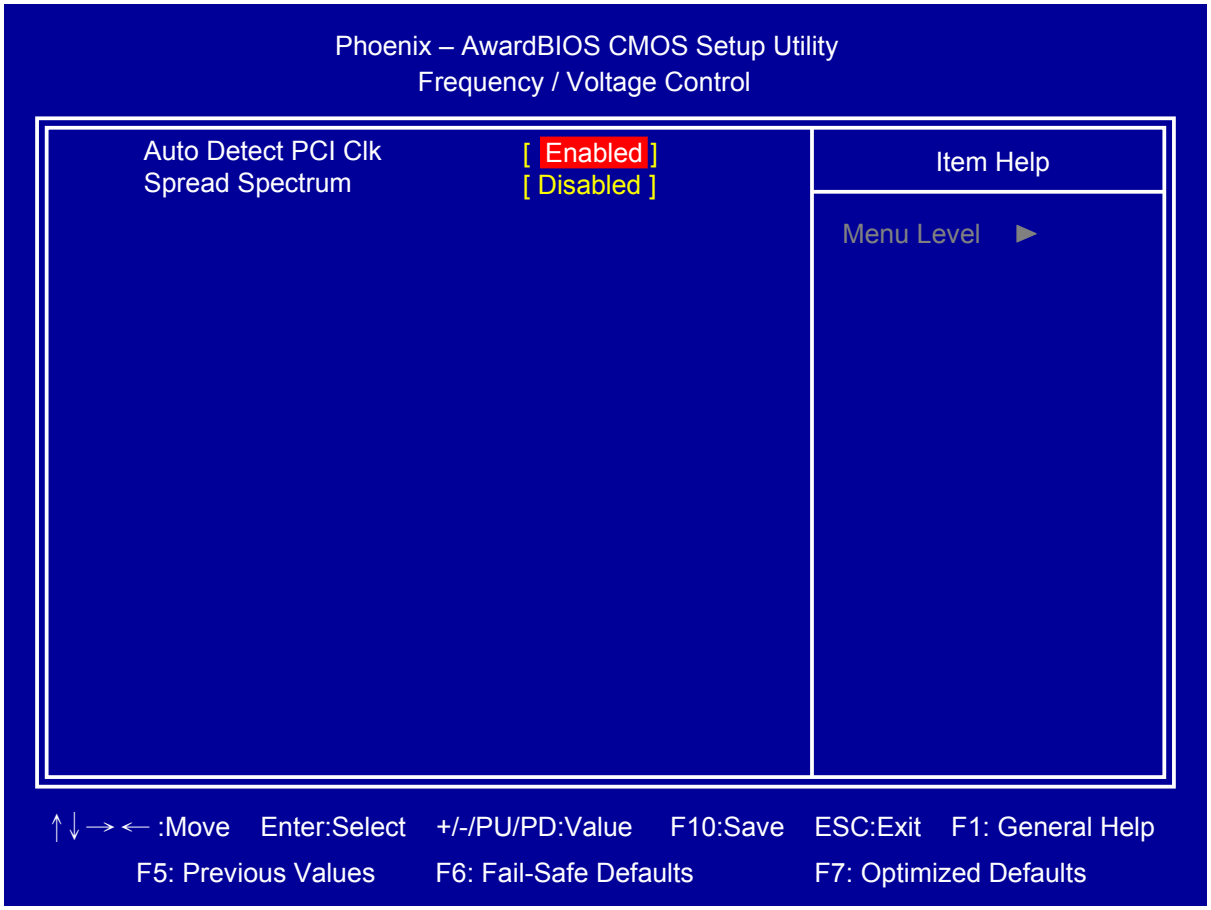
☐ **CPU Warning Temperature**

If CPU temperature reaches the setting value will beep in DOS mode.

☐ **CPU Smart Fan Temperature**

Setup CPU Smart FAN temperature.

3.9 Frequency/Voltage Control



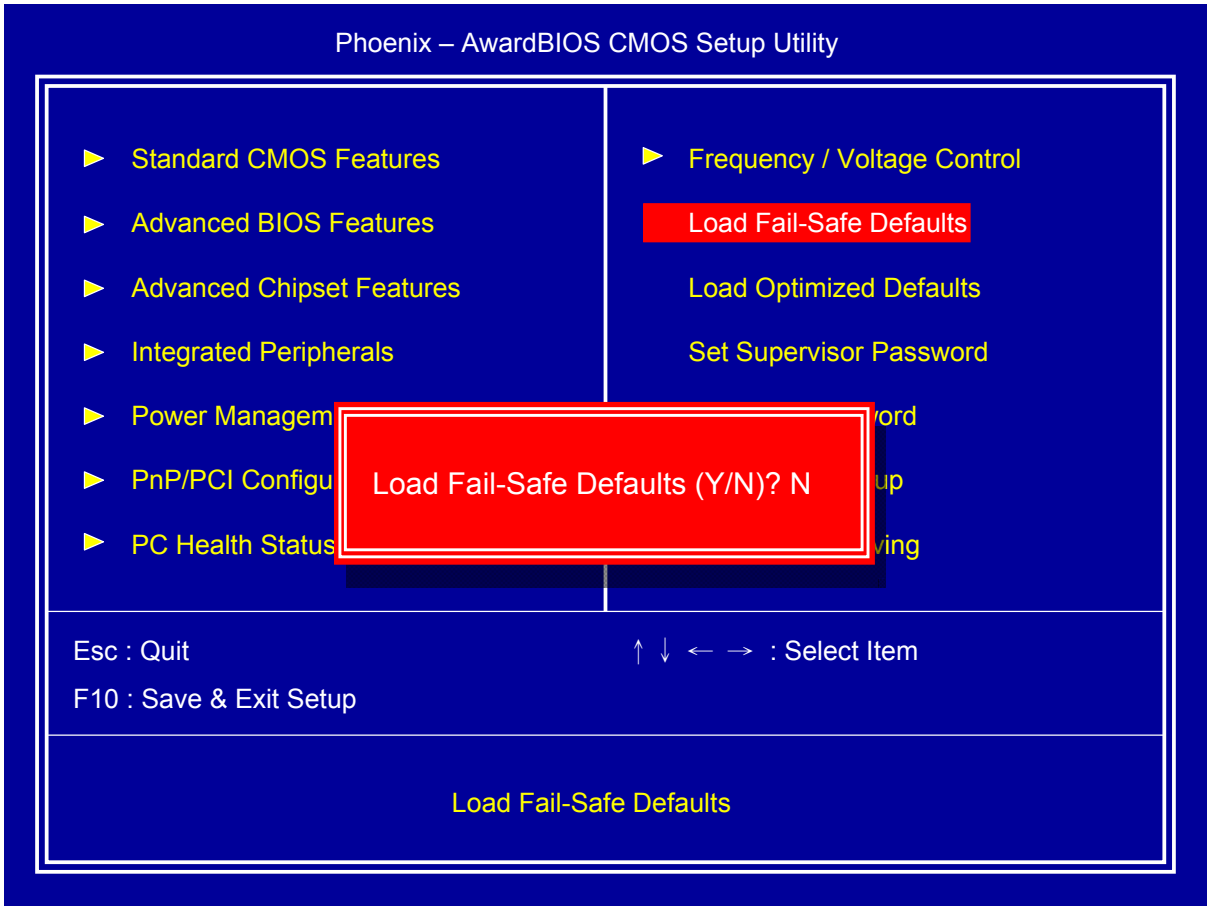
☐ **Auto Detect PCI Clk**

Select “Auto Detect PCI Clk” Enabled/Disabled

☐ **Spread Spectrum**

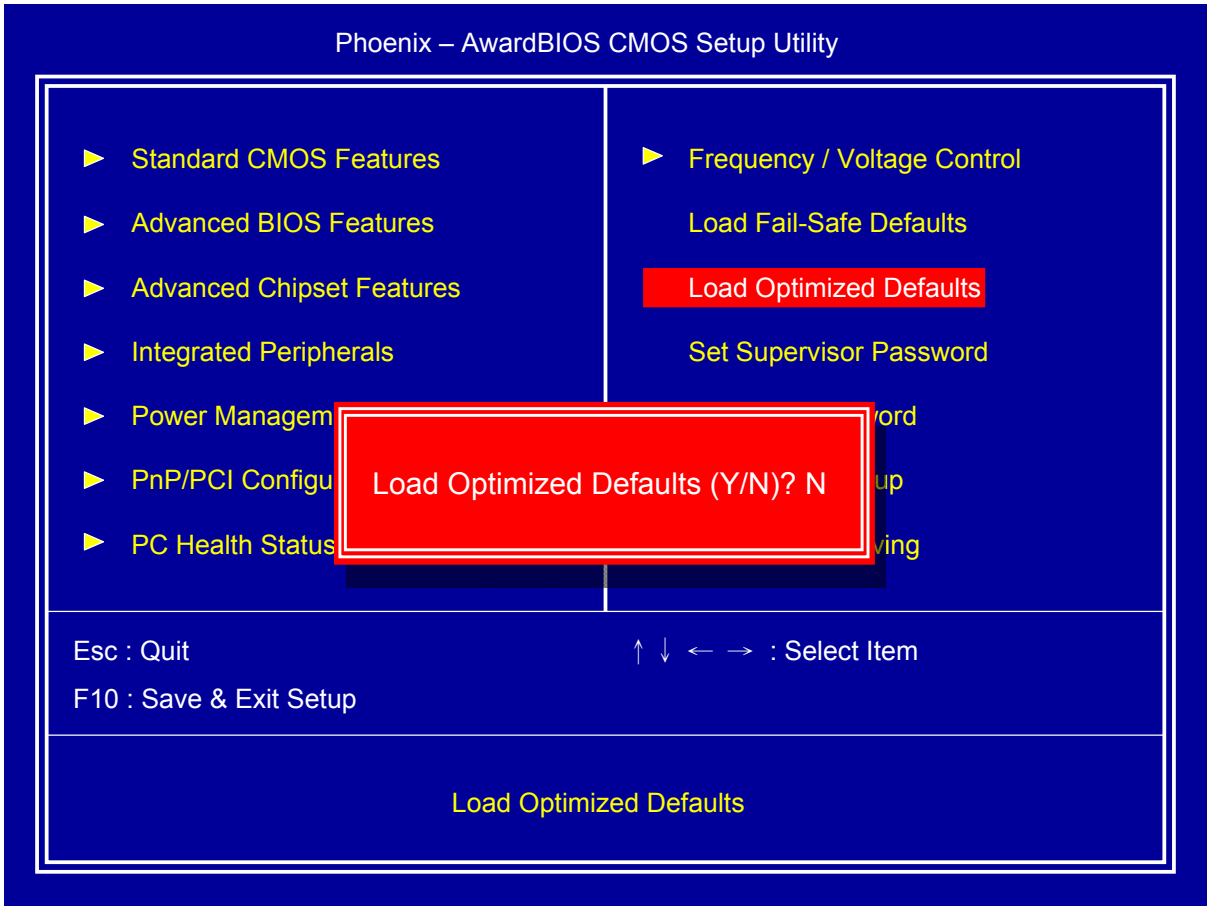
Select “Spread Spectrum” Enabled/Disabled.

3.10 Load Fail-Safe Defaults



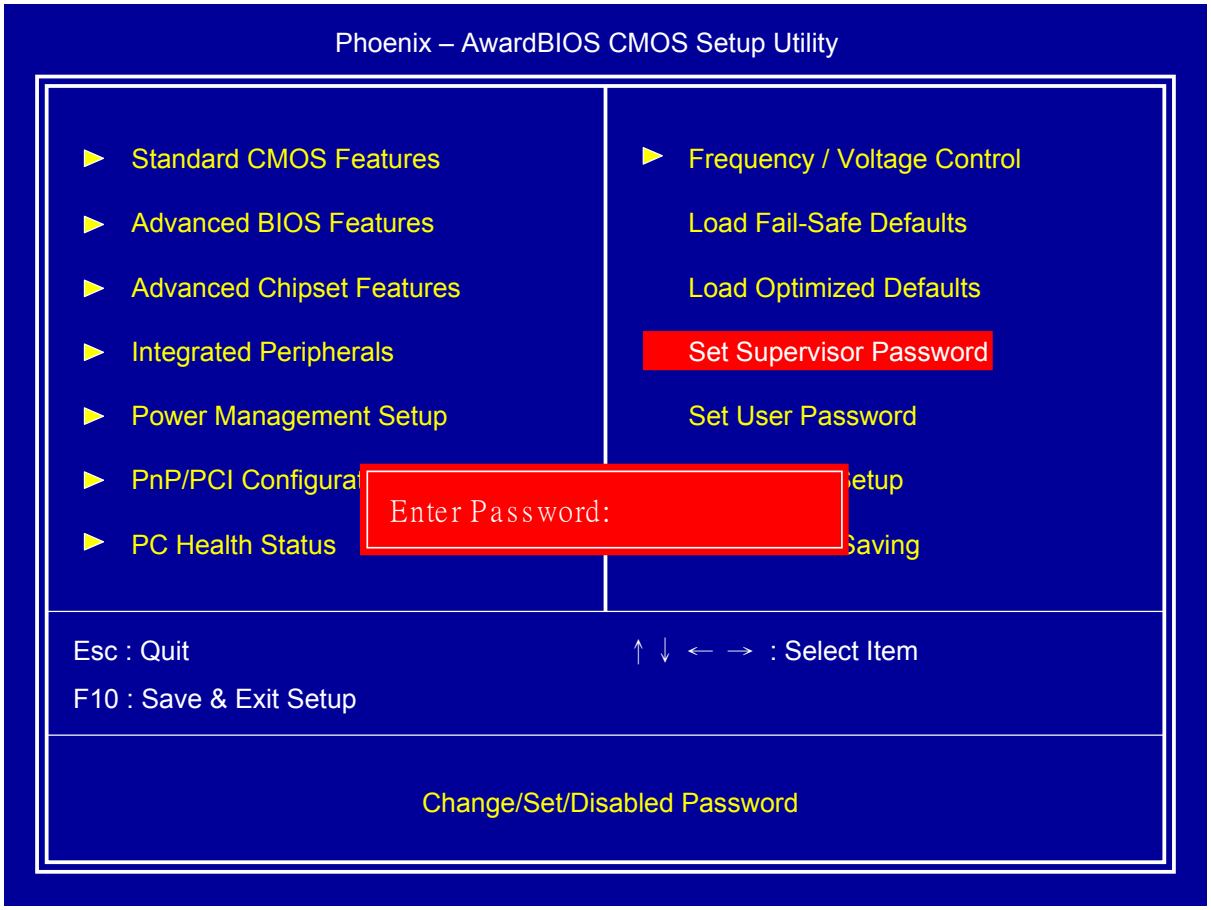
This item will set configuration for non-optimized system operation.

3.11 Load Optimized Defaults



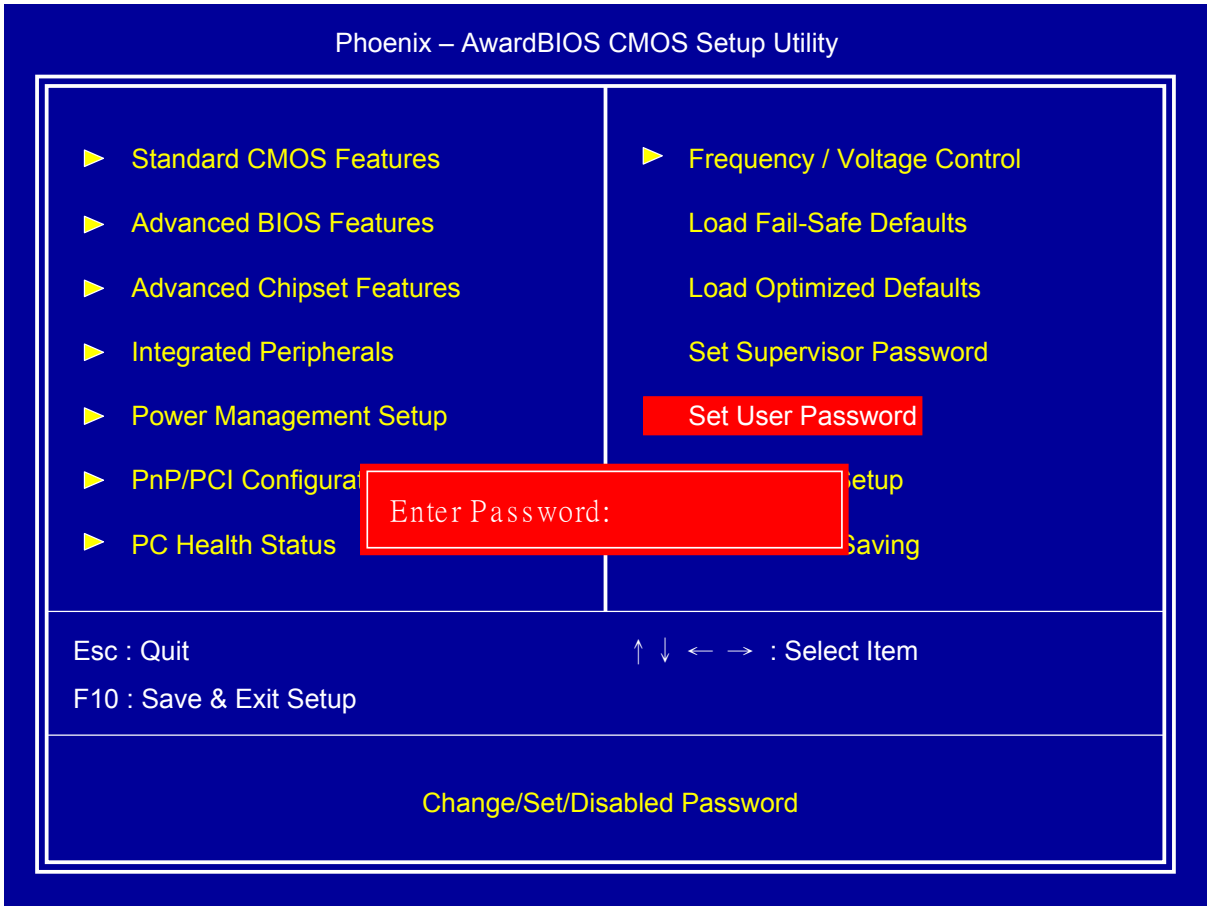
This item will restore factory default setting for optimized system operation.

3.12 Set Supervisor Password



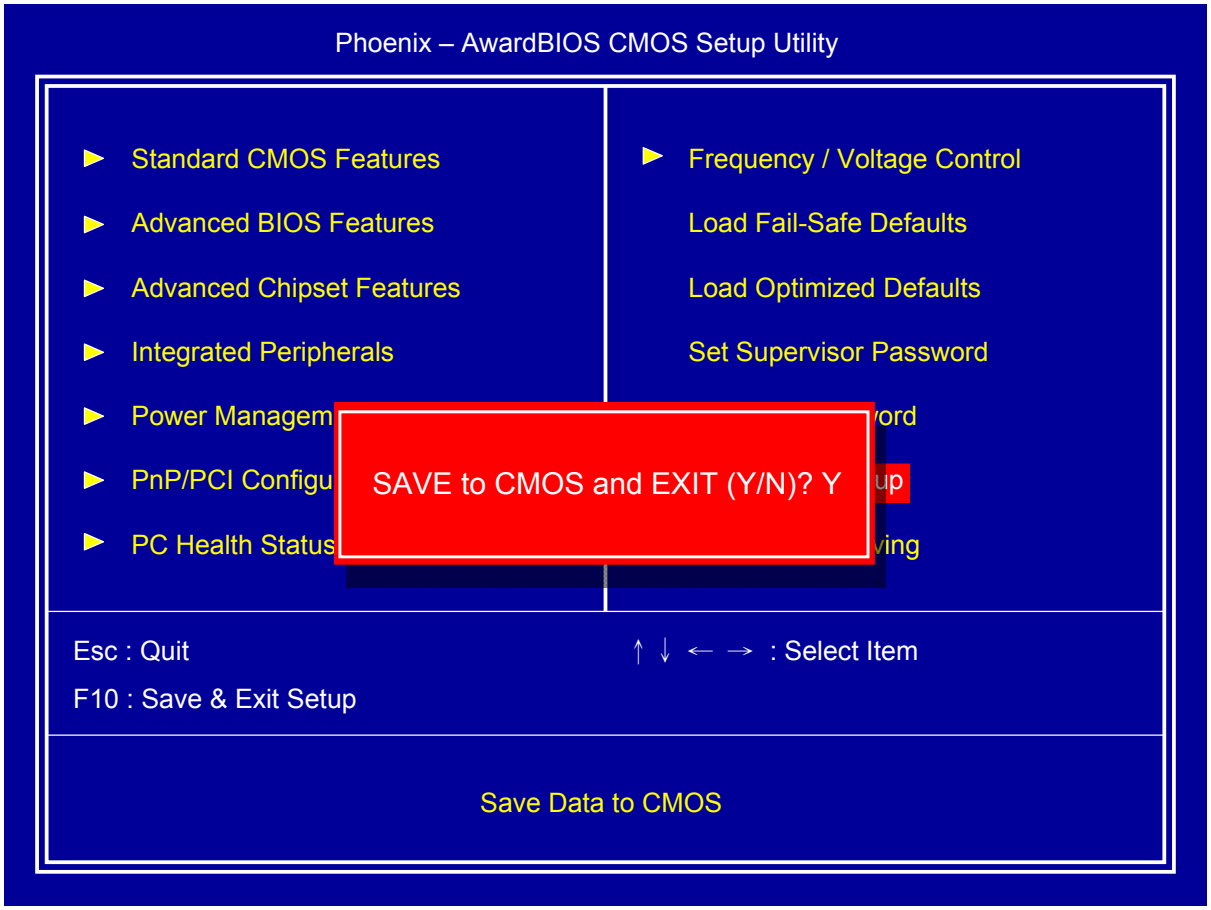
If set supervisor password, it will request typing password to enter BIOS setup utility.

3.13 Set User Password



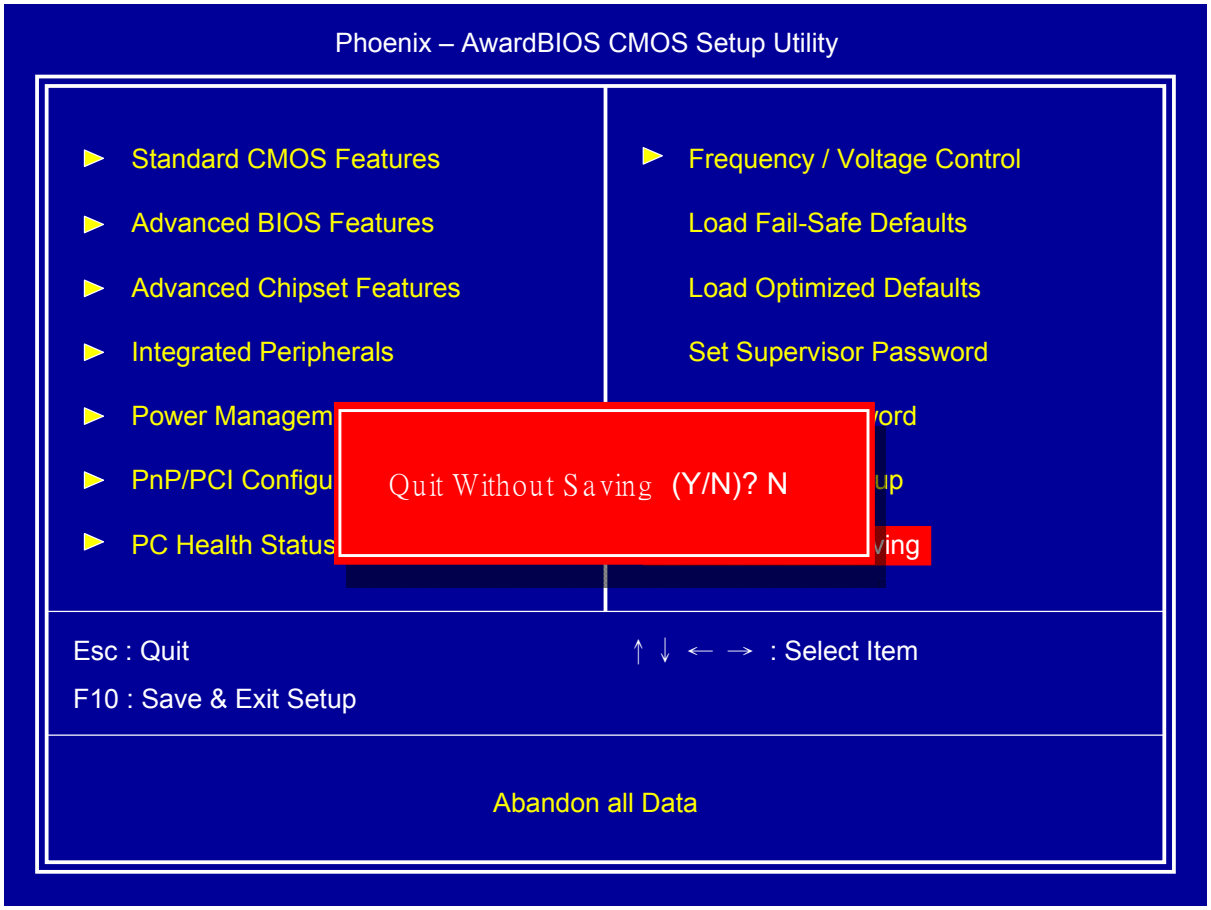
If set user password will request typing password to enter BIOS setup utility, it does not allow modifying configuration.

3.14 Save & Exit Setup



This item confirms save configuration or not before exiting BIOS setup utility.
Press <Y> and <Enter> to save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

3.15 Exit Without Saving



This item confirm save configuration or not before quit BIOS setup utility.
Press <Y> and <Enter> will not save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

Chapter 4 Drivers Installation

This chapter introduces driver installation information.

Please insert utility CD to CD-ROM drive, the install menu will appear automatically. If the install menu does not list suitable driver of Operate System or appear automatically, please select corresponding driver of utility CD to install.

Windows XP driver installation steps are as below.

4.1 Intel Chipset Device Software

Step 1. Click “Next” to continue

Step 2. Read License Agreement and click “Yes” to continue.

Step 3. Click “Next” to continue.

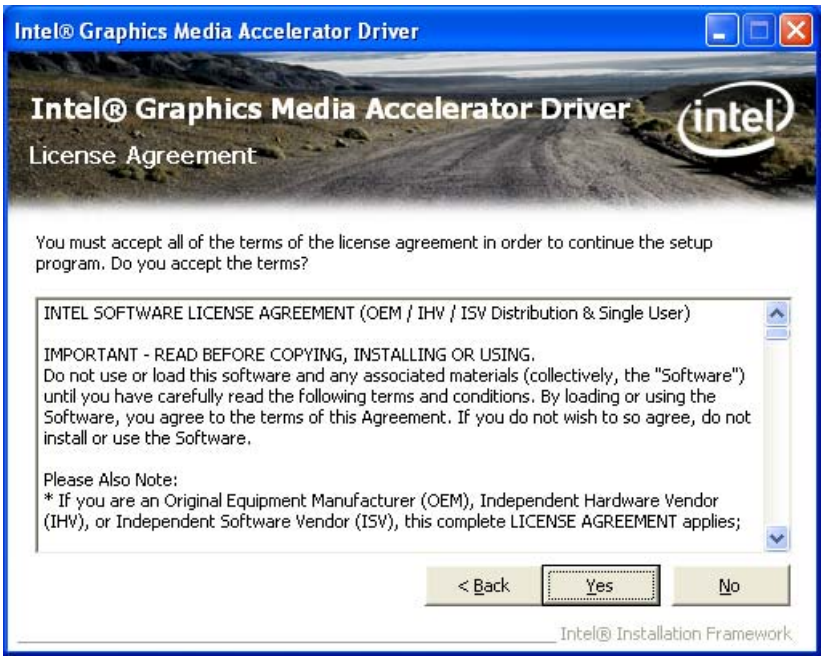
Step 4. Click “Next” to continue.

Step 5. Click “Finish” to complete setup.

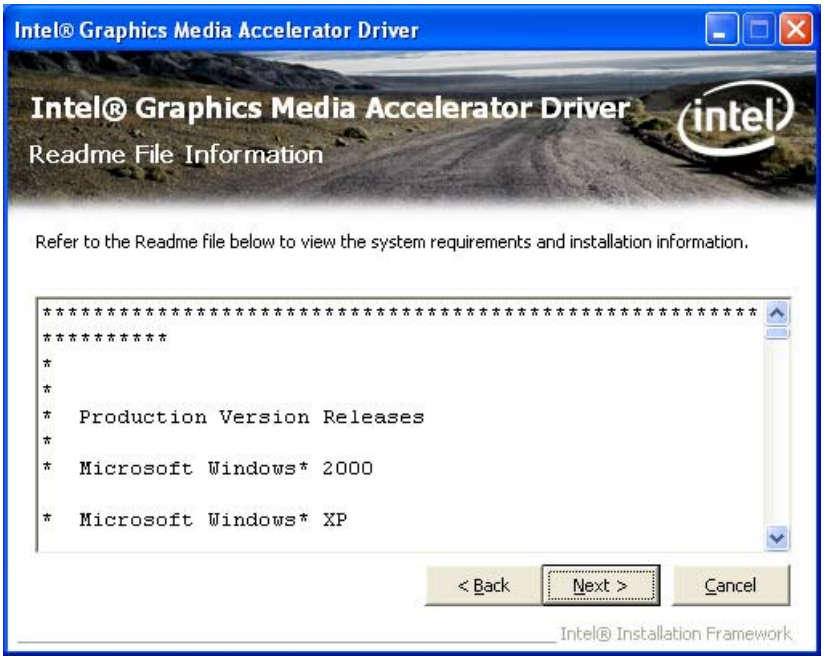
4.2 Intel Graphic Media Accelerator Driver

Step 1. Click “Next” to continue.

Step 2. Read License Agreement and click “Yes” to continue.



Step 3. Click “Next” to continue.

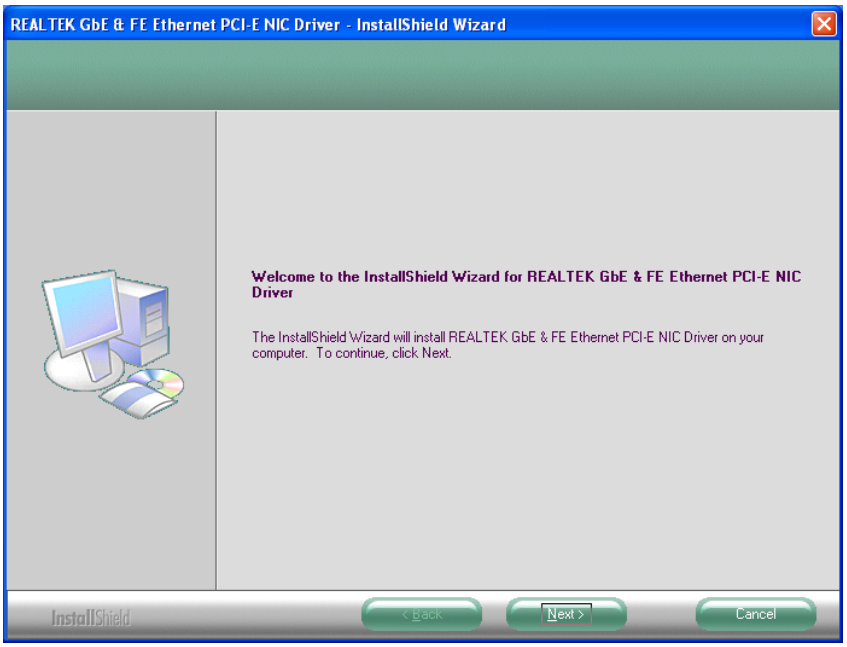


Step 4. Click “Next” to continue.

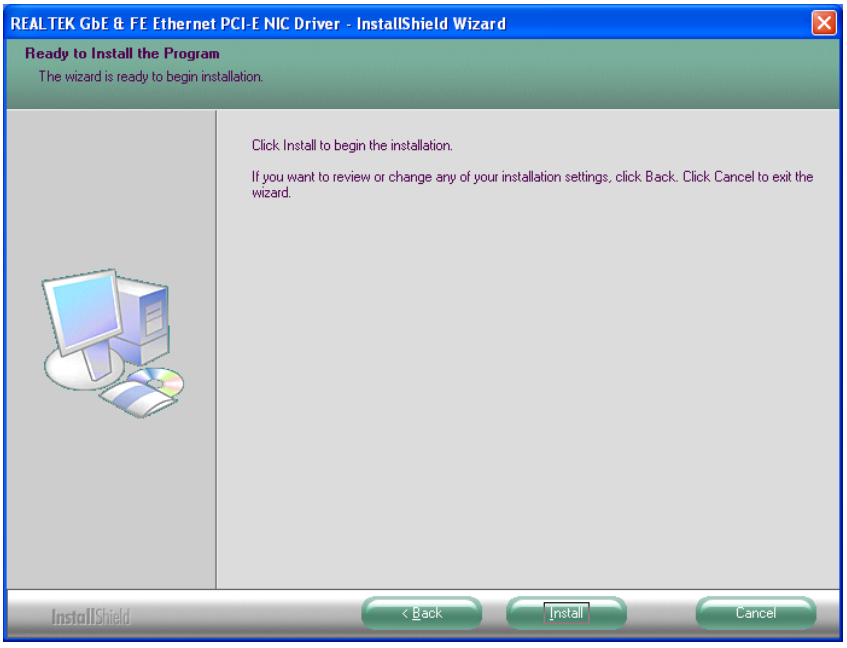
Step 5. Click “Finish” to complete setup.

4.3 LAN Driver

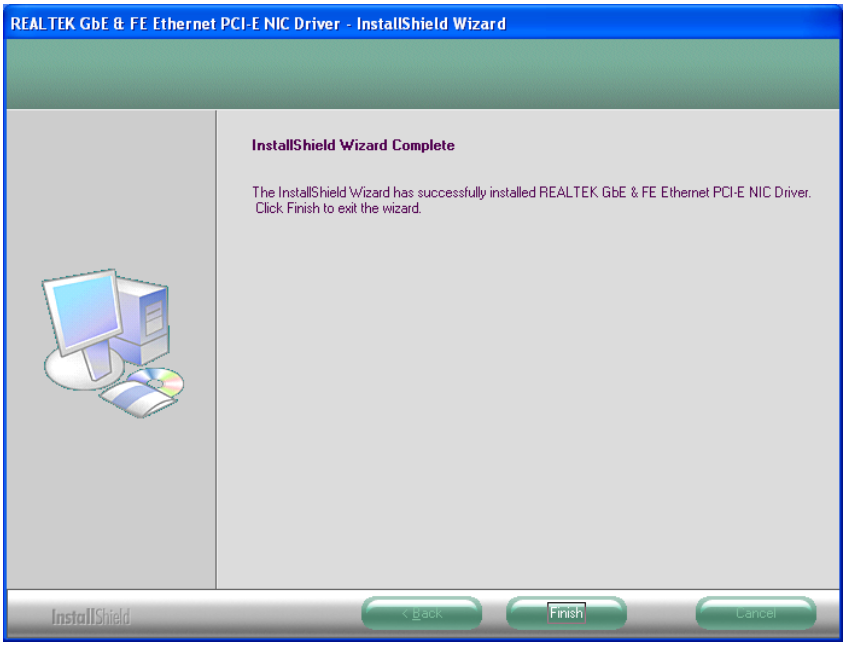
Step 1. Click “Next” to continue.



Step 2. Click “Install” to continue.

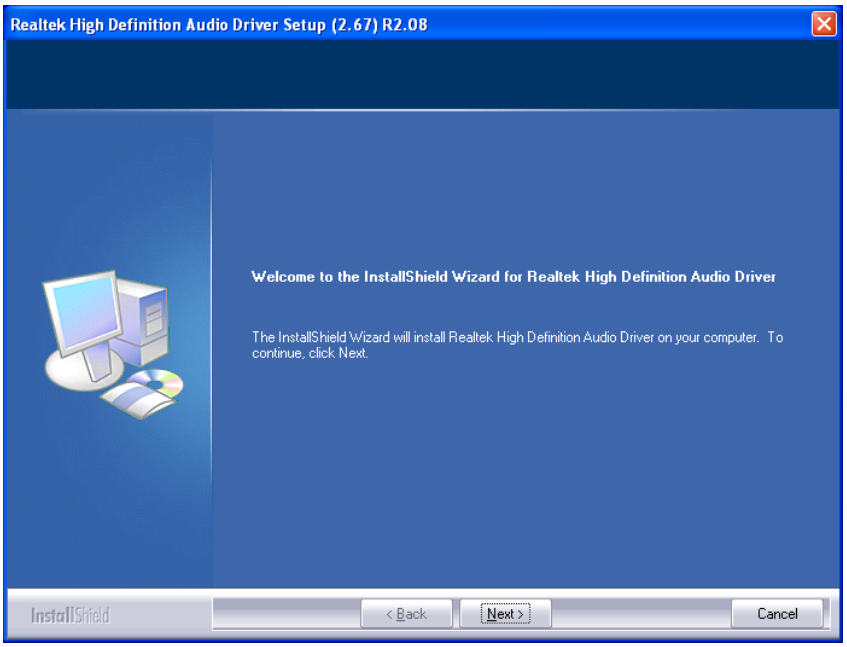


Step 3. Click “Finish” to complete setup.

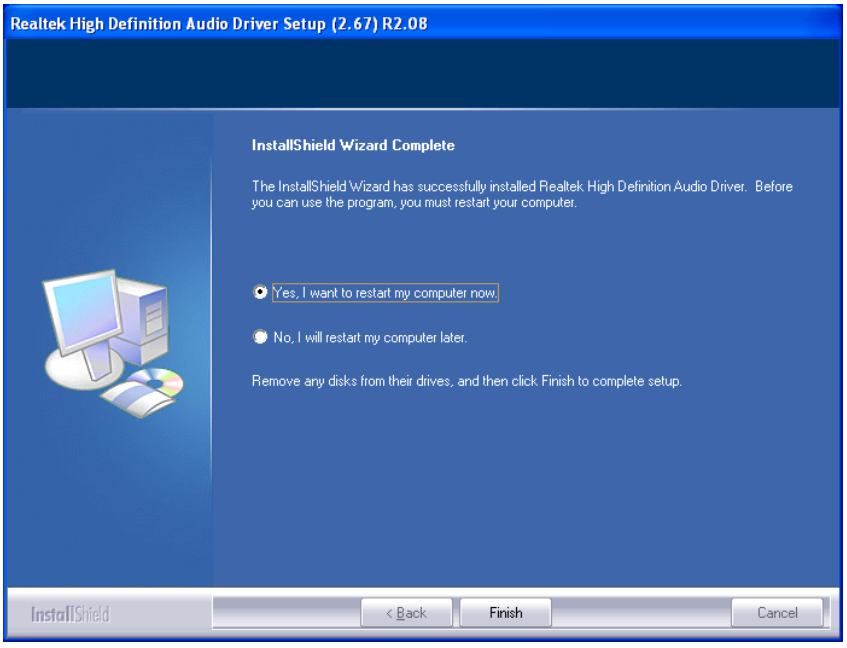


4.4 Audio Driver

Step 1. Click “Next” to continue.



Step 2. Click “Finish” to complete setup.



Appendix-A Watchdog

The working algorithm of WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval set by software.

The System Board allows users to control WDT through dynamic software programming. WDT starts counting when it is activated. It sends out a signal to system reset, when time-out interval ends. To prevent time-out interval from running out, a re-trigger signal will need to be sent before counting reaches its end. This action will restart the counting process.

WDT program should keep counting process running under normal condition. WDT should never generate a system reset unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after Time-out Value to be counted down to zero; or user can directly fill a zero value into Time-out Value Register to disable WDT immediately.

To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

For more information about WDT, please refer to Winbond W83627EHF data sheet.

There are two PnP I/O port addresses that can be used to configure WDT.

1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

Belows are some example codes, which demonstrate the use of WDT.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin 77 to be a WDTO# Signal
outp(0x002E, 0x2D);
outp(0x002F, inp(0x002F) & 0xFE);

// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);

// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);

//Clear WDTO# Status
outp(0x002E, 0xF7);
outp(0x002F, inp(0x2F) & 0xEF);

// Select Count Mode (Second / Minute)
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | ( Count-mode Register  & 0x08));

// Set Time-out Value
outp(0x002E, 0xF6);
outp(0x002F,  Time-out Value Register );

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Value of Count-mode Register:

1) 0x00 -- Count down in seconds (Bit3=0)

2) 0x08 -- Count down in minutes (Bit3=1)

Value of Time-out Value Register:

1) 0x00 -- Time-out Disable

2) 0x01~0xFF -- Value for counting down

Appendix-B GPIO

The System Board provides 4 dedicated output ports and 4 programmable I/O ports that can be individually configured to perform a simple I/O function. Users can configure 4 programmable I/O ports to become an input or output port by programming register bit of I/O Selection .*To invert port value, the setting of Inversion Register has to be made* (Note). Port values can be set to read or write through Data Register.

Note: Only 4 programmable I/O ports support.

Additionally, 4 Digital Output ports amplified signals from GPIO ports. There are open-drain buffers, which can offer greater driving capacity up to 100mA.

For more information about GPIO, please refer to Winbond W83627EHF data sheet.

The related Control Registers of GPIO are all included in the following sample program that is written in C language. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

There are two PnP I/O port addresses that can be used to configure GPIO ports,

1) 0x2E - EFER (Extended Function Enable Register, for entering Extended Function Mode)
   - EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F - EFDR (Extended Function Data Register, for accessing desired CR)

Belows are some example codes, which demonstrate the use of GPIOs.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin121-128 to be GPIO port
outp(0x002E, 0x29);
outp(0x002F, inp(0x002F) | 0x01);
```

```
// Select Logic Device 7
outp(0x002E, 0x07);
outp(0x002F, 0x07);

// Active Logic Device 7
outp(0x002E, 0x30);
outp(0x002F, 0x01);

// Select Inversion Mode
outp(0x002E, 0xF2);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Inversion Register  & 0xC3));

// Select I/O Mode
outp(0x002E, 0xF0);
outp(0x002F, (inp(0x002F) & 0x3C) | ( I/O Selection Register  & 0xC3));

// Access GPIO ports
outp(0x002E, 0xF1);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Output Data  & 0xC3));
or
 Input Data  = inp(0x002F);

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Each bit in the lower nibble of each Register represents the setting of a GPIO port.

Super IO Pin	Bit	GPIO DIO
128	0	GPIO DIO-Out0
127	1	GPIO DIO-Out1
126	2	GPIO DIO-In0
125	3	GPIO DIO-In1
124	4	GPIO DIO-In2
123	5	GPIO DIO-In3
122	6	GPIO DIO-Out2
121	7	GPIO DIO-Out3

Value of Inversion Register:
When set in '1', the incoming/outgoing port value is inverted.
When set in '0', the incoming/outgoing port value is the same as in Data Register.

Value of I/O Selection Register:
When set in '1', respective GPIO port is programmed as an input port.
When set in '0', respective GPIO port is programmed as an output port.

Value of Output Data / Input Data:
If a port is assigned to be an output port, then its respective bit can be read/written.
If a port is assigned to be an input port, then its respective bit can be read only.

Note :
DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 is programmed as **Inputs** by BIOS default.

Parameter	Conditions
VinH	min +1.857V
VinL	max +0.525V
Rated Vin	-8V ~ +12V
NC Status	High by Default

** Attention : If **DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as Output signal, they can only offer a normal signal transfer (NOT amplified signals).**

Parameter	Conditions
VoutH	3.3V thru 10k
VoutL	0V thru 1k

DIO_OUT0/DIO_OUT1/DIO_OUT2/DIO_OUT3 is fixed as **Outputs** by BIOS.

Parameter	Conditions
Open-drain buffer	Power-on default = Open
Driving Capacity	max 100mA continue